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

An ALION Technical Center

Test Report

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

FOR: **Radial Engineering**
Port Coquitlam, British Columbia, Canada

Sound Absorption
RAL™-A18-071

CONDUCTED: 2018-03-19

ON: Model F202-2448 - Hercules absorption panels

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 Model F202-2448 - Hercules absorption panels. A full external visual inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

Panel Specimen

Trade Name:	Hercules absorption panels
Panel 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.)
Face Material:	Polyester fabric
Core Material:	Glass wool, impact resistant facing
Core Nominal Density:	96.1 kg/m^3 (6 lb/ft^3)
Edge Treatment:	Resin hardened
Overall Thickness:	50.8 mm (2 in.)
Weight:	39.24 kg (86.5 lbs)

Physical Measures

Size:	2.74 m (108.00 in.) wide by 2.44 m (96.00 in.) long
Thickness:	50.80 mm (2.00 in.)
Weight:	39.24 kg (86.50 lbs.)
Mass per Unit Area:	5.86 kg/m^2 (1.20 lbs./ft^2)
Area:	6.69 m^2 (72.00 ft^2)

Test Environment

Volume:	292.0 m^3 (10,311.0 ft^3)
Temperature:	21.0±0.0ºC (69.8±0.1ºF) (Requirement: ≥10° C and ≤ 5° C change)
Humidity:	63.2±0.2% (Requirement: ≥40% RH and ≤ 5% change)
Barometric Pressure:	98.4 kPa. (Requirement not defined)

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Figure 1 – Specimen mounted in the test chamber.

Figure 2 – Detail of test specimen.

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MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. The perimeter edges were exposed, as would be typical of an actual installation of this specimen.

TEST RESULTS

1/3 Octave Center Frequency (Hz)	Total Absorption (SI) (m^2)	Total Absorption (IP) (Sabins)	Absorption Coefficient (Sabins / ft^2)
100	3.09	33.30	0.46
** 125	3.93	42.29	0.59
160	4.30	46.28	0.64
200	5.14	55.35	0.77
** 250	5.80	62.38	0.87
315	6.15	66.22	0.92
400	6.82	73.44	1.02
** 500	7.00	75.39	1.05
630	6.82	73.44	1.02
800	6.81	73.32	1.02
** 1000	6.68	71.93	1.00
1250	6.61	71.10	0.99
1600	6.56	70.57	0.98
** 2000	6.52	70.14	0.97
2500	6.58	70.81	0.98
3150	6.39	68.76	0.95
** 4000	6.47	69.62	0.97
5000	6.43	69.26	0.96

SAA = 0.97
NRC = 0.95

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TEST RESULTS (Continued)

The sound absorption average (SAA) is defined as a single number rating, the average, rounded to the nearest 0.01, of the sound absorption coefficient of a material for the twelve one-third octave bands from 200 through 2500 Hz, inclusive.

The noise reduction coefficient (NRC) is defined from previous versions of this same test method as the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral 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: 2018.04.04 14:50:24 -05'00'

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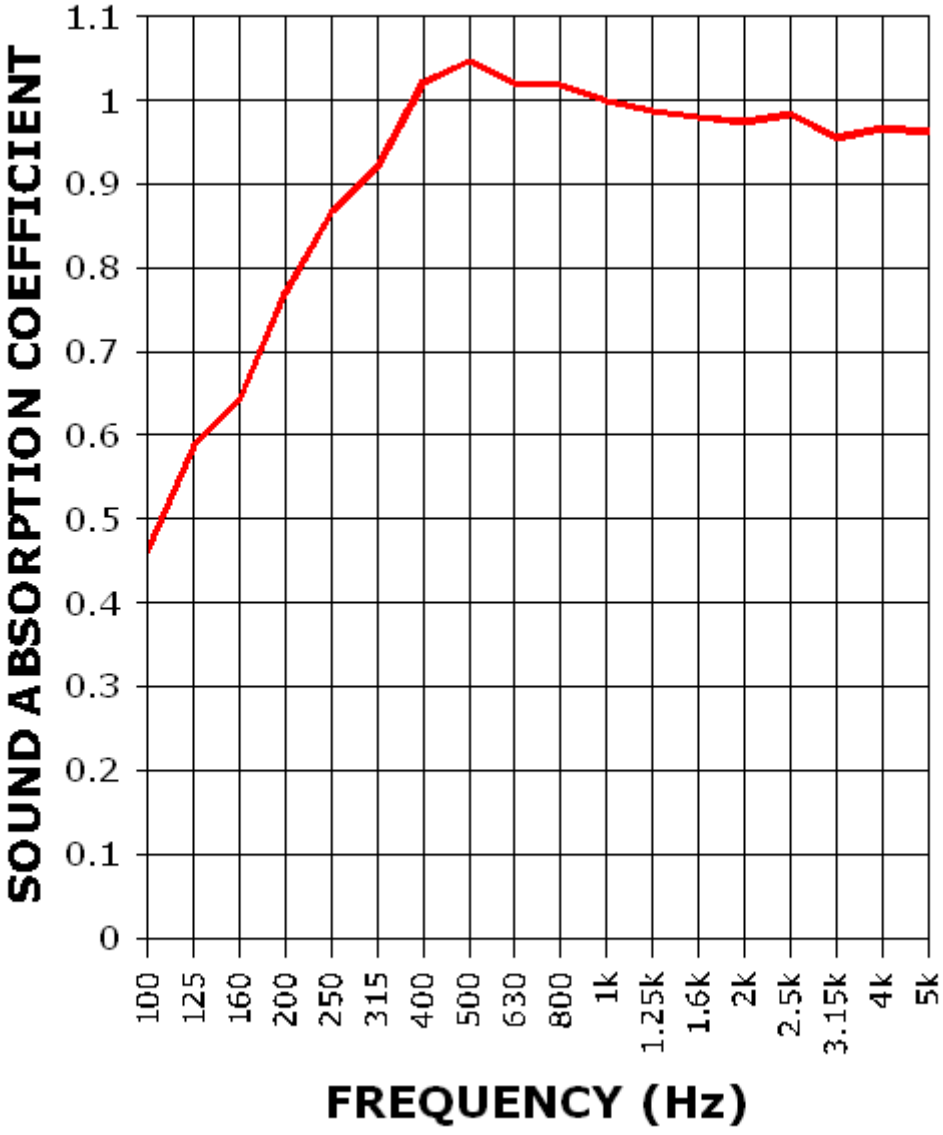
SOUND ABSORPTION REPORT

Model F202-2448 - Hercules absorption panels



SAA = 0.97
NRC = 0.95

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APPENDIX A: Extended Frequency Range Data

Specimen: Model F202-2448 - Hercules absorption panels (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** (Sabins / ft^2)
31.5	-0.91	-0.01
40	-1.36	-0.02
50	5.37	0.07
63	-0.65	-0.01
80	8.52	0.12
100	33.30	0.46
125	42.29	0.59
160	46.28	0.64
200	55.35	0.77
250	62.38	0.87
315	66.22	0.92
400	73.44	1.02
500	75.39	1.05
630	73.44	1.02
800	73.32	1.02
1000	71.93	1.00
1250	71.10	0.99
1600	70.57	0.98
2000	70.14	0.97
2500	70.81	0.98
3150	68.76	0.95
4000	69.62	0.97
5000	69.26	0.96
6300	71.14	0.99
8000	72.03	1.00
10000	67.88	0.94
12500	69.36	0.96

APPENDIX B: Instruments of Traceability

Specimen: Model F202-2448 - Hercules absorption panels (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
Bruel & Kjaer Pulse Analyzer - System3	Type 3560-C	2647140	2017-04-21	2018-04-21
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2017-09-22	2018-09-22
Bruel & Kjaer Pistonphone	Type 4228	2781248	2017-08-02	2018-08-02
EXTECH-Temp	SD700	A083322	2017-11-20	2018-11-20

END