

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

An ALION Technical Center

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

SPONSOR: **Scandinavian Spaces**
Austin, TX

Sound Absorption
RAL™-A21-173

CONDUCTED: 2021-03-03

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ON: Gaia panels

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 17025:2017 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 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 Gaia panels. 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: Gaia
Material ID: A42
Material: Polyester molded felt in 50% recycled plastic (polyethylene terephthalate)
Manufacturer: Bla Station – Åhus, Sweden

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Materials: Molded 5 mm (0.197 in.) thick felt shell
Four (4) felt mounting clips centered at each perimeter edge, 11 mm (0.433 in.) thick by 100 mm (3.937 in.) wide
Quantity: 16
Geometry: Rectangular panel silhouette @ 650 mm (25.625 in.) by 650 mm (25.625 in.)
Raised 90° arc centered at panel corner, radius of curvature @ 550 mm (21.654 in.)

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Test Specimen (continued)

Depth: Minimum @ 24 mm (0.945 in.) at panel edges
Maximum @ 76 mm (2.992 in.) along arc section
Overall Weight: 15.08 kg (33.25 lbs)
Installation: Groups of four (4) arranged to form raised circles
Groups arranged in 2x2 grid

Overall Specimen Properties

Size: 2.6 m (102.187 in) wide by 2.6 m (102.187 in) long
Thickness: 0.09 m (3.41 in)
Weight: 15.08 kg (33.25 lbs)
Mass per Unit Area: 2.24 kg/m² (0.46 lbs/ft²)
Calculation Area: 6.737 m² (72.52 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 21.3 °C ± 0.6 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 57.45 % ± 0.5 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.7 kPa (Requirement not defined)

MOUNTING METHOD

Type F-9 Mounting: The test specimen was laid directly against the test surface such that the mounting hardware acted as spacers, creating a 9 mm (0.354 in.) thick airspace between the test surface and the panel body. The numeral suffix in the mounting designation is the thickness of the spacers in millimeters, rounded to the nearest integer multiple of 1. Per sponsor request, the perimeter edges were left exposed, as would be typical of a field installation of the product under test.

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Figure 1 – Specimen mounted in test chamber

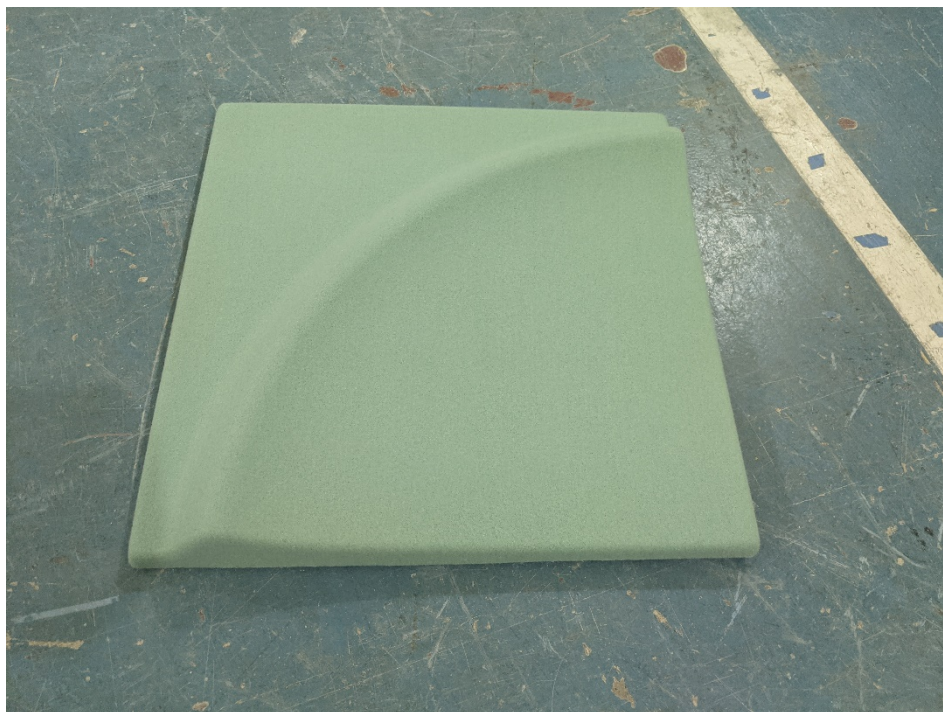


Figure 2 – Individual specimen panel, face exposed to sound field

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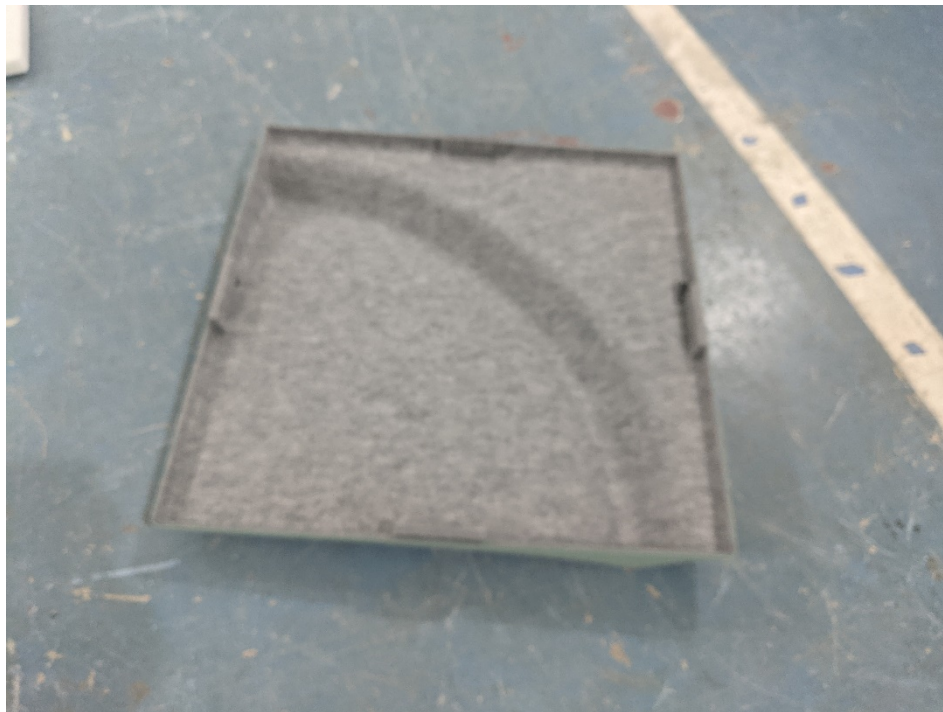


Figure 3 – Individual specimen panel, face oriented toward horizontal test surface



Figure 4 – Air space resulting from felt mounting brackets

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TEST RESULTS

Specimen total absorption and absorption coefficient are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages.

1/3 Octave Center

Frequency (Hz)	Total Absorption (m ²)	Total Absorption (Sabins)	Absorption Coefficient
100	0.64	6.90	0.10
** 125	0.71	7.66	0.11
160	0.92	9.86	0.14
200	1.37	14.80	0.20
** 250	1.95	20.95	0.29
315	3.21	34.57	0.48
400	3.94	42.37	0.58
** 500	4.52	48.62	0.67
630	4.95	53.32	0.74
800	5.33	57.33	0.79
** 1000	5.66	60.94	0.84
1250	5.99	64.52	0.89
1600	6.15	66.17	0.91
** 2000	6.17	66.44	0.92
2500	6.06	65.22	0.90
3150	5.82	62.63	0.86
** 4000	5.46	58.75	0.81
5000	5.25	56.50	0.78

SAA = 0.68

NRC = 0.70

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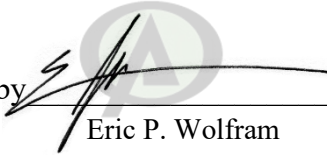
TEST RESULTS (continued)

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

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

Tested by 
Marc Sciaky
Senior Experimentalist

Report by 
Malcolm Kelly
Acoustical Test Engineer

Approved by 
Eric P. Wolfram
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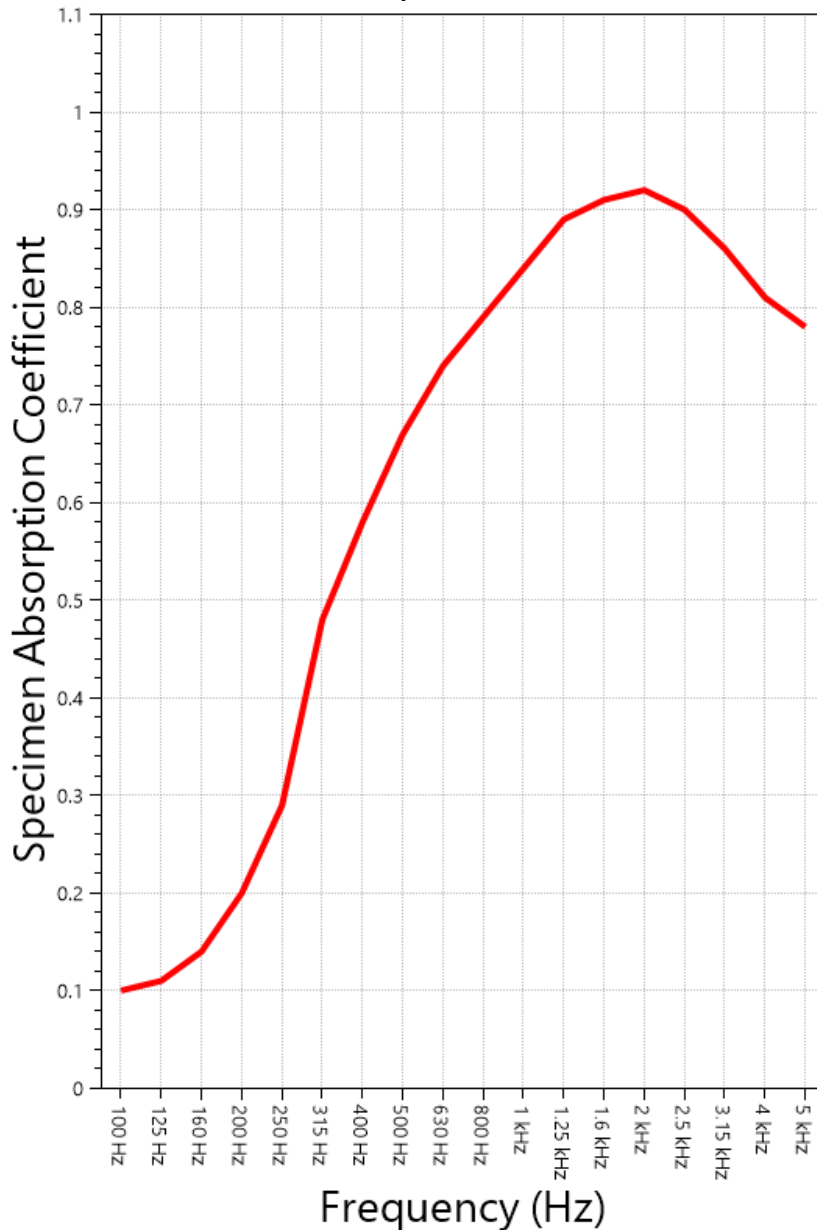
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SOUND ABSORPTION REPORT

Gaia panels



SAA = 0.68

NRC = 0.70

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APPENDIX A: Extended Frequency Range Data

Specimen: Gaia 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
31.5	-3.95	-0.05
40	-0.28	0.00
50	-0.74	-0.01
63	-0.64	-0.01
80	-2.79	-0.04
100	6.90	0.10
125	7.66	0.11
160	9.86	0.14
200	14.80	0.20
250	20.95	0.29
315	34.57	0.48
400	42.37	0.58
500	48.62	0.67
630	53.32	0.74
800	57.33	0.79
1000	60.94	0.84
1250	64.52	0.89
1600	66.17	0.91
2000	66.44	0.92
2500	65.22	0.90
3150	62.63	0.86
4000	58.75	0.81
5000	56.50	0.78
6300	54.62	0.75
8000	58.35	0.80
10000	56.85	0.78
12500	51.53	0.71



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APPENDIX B: Instruments of Traceability

Specimen: Gaia panels (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	3160-106968	2020-06-26	2021-06-26
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2020-09-30	2021-09-30
Bruel & Kjaer Pistonphone	Type 4228	2781248	2020-08-12	2021-08-12
EXTECH Hygro 639	SD700	A.103639	2020-12-18	2021-12-18

APPENDIX C: Revisions to Original Test Report

Specimen: Gaia panels (See Full Report)

<u>Date</u>	<u>Revision</u>
2021-03-09	Original report issued

END