

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

An ALION Technical Center

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WALLACE CLEMENT SABINE

## Test Report

SPONSOR: **Scandinavian Spaces**  
Austin, TX

**Sound Absorption**  
**RAL™-A21-171**

CONDUCTED: 2021-03-02

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ON: Ginkgo 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" except for the following variance. The sample did not form a rectangular patch as required by Section 9.1.1. This variance is justified to better represent the product's typical field installation pattern. 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 Ginkgo 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: Ginkgo  
Material ID: A40  
Material: Polyester molded felt in 50% recycled plastic (polyethylene terephthalate)  
Manufacturer: Bla Station – Ahus, 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 3 mm (0.118 in.) thick felt shell  
12 mm (0.472 in.) thick felt support along centerline  
Quantity: 55  
Geometry: Composite shape enclosed by convex 180° arc and two concave 90° arcs; radius of curvature @ 250 mm (9.843 in.)

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Width @ 500 mm (19.685 in.)  
Length, midpoint of 180° arc to opposite rounded cusp @ 419 mm  
(16.5 in.)

### Test Specimen (continued)

Depth: Minimum @ 10 mm (0.394 in.) at rounded cusp  
Increases linearly along path of center support  
Maximum @ approximately 61 mm (2.404 in.)  
Overall Weight: 18.26 kg (40.25 lbs)  
Installation: Convex faces of felt shells exposed to sound field  
All pieces have same orientation, 180° arcs match to adjacent  
90° arcs

### Overall Specimen Properties

Size: 3.02 m (119.0 in) wide by 2.68 m (105.625 in) long  
Thickness: 0.06 m (2.404 in)  
Weight: 18.26 kg (40.25 lbs)  
Mass per Unit Area: 2.25 kg/m<sup>2</sup> (0.46 lbs/ft<sup>2</sup>)  
Calculation Area: 8.11 m<sup>2</sup> (87.29 ft<sup>2</sup>)

Note: The sample did not form a rectangular patch as required by ASTM C423-17 Section 9.1.1. This variance is justified to better represent the product's typical field installation pattern. The calculation area used in this test consists of a horizontal rectangular envelope covering the extents of all sample materials.

### Test Environment

Room Volume: 291.98 m<sup>3</sup>  
Temperature: 21.3 °C ± 0.6 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)  
Relative Humidity: 60.8 % ± 1.8 % (Requirement: ≥ 40 % and ≤ 5 % change)  
Barometric Pressure: 99.3 kPa (Requirement not defined)

### MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. 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

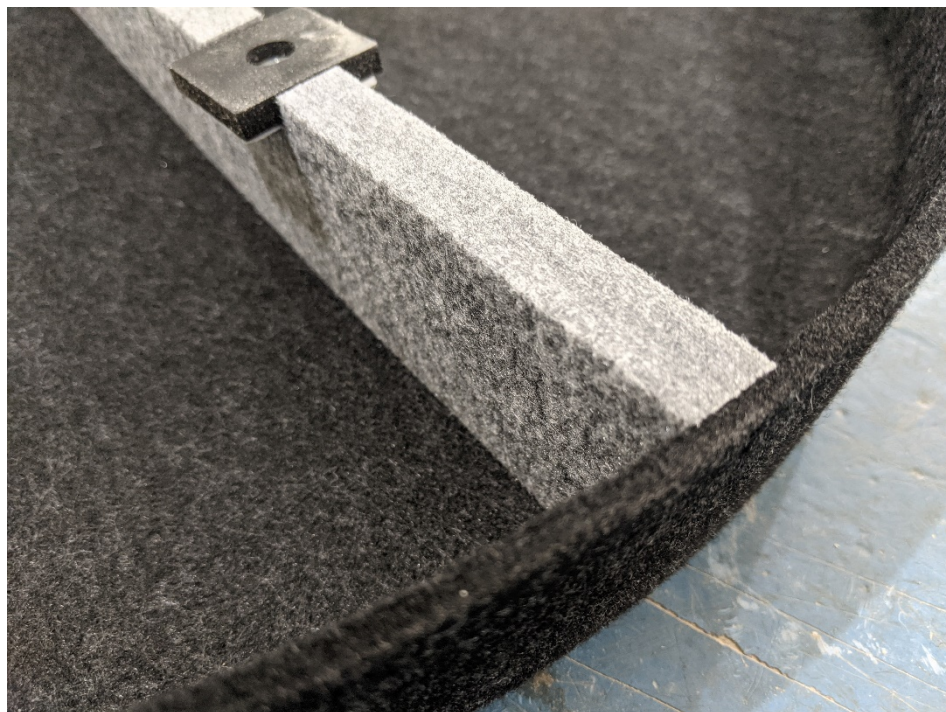


Figure 4 – Detail of felt shell and support material

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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 <sup>2</sup> )	Total Absorption (Sabins)	Absorption Coefficient
100	0.58	6.23	0.07
** 125	1.30	14.01	0.16
160	1.80	19.42	0.22
200	2.70	29.07	0.33
** 250	3.82	41.17	0.47
315	5.91	63.60	0.73
400	6.60	70.99	0.81
** 500	6.84	73.65	0.84
630	6.54	70.37	0.81
800	6.52	70.16	0.80
** 1000	6.90	74.24	0.85
1250	6.89	74.16	0.85
1600	6.76	72.74	0.83
** 2000	6.72	72.36	0.83
2500	6.44	69.32	0.79
3150	6.10	65.64	0.75
** 4000	6.37	68.53	0.79
5000	6.46	69.48	0.80

**SAA = 0.75**

**NRC = 0.75**

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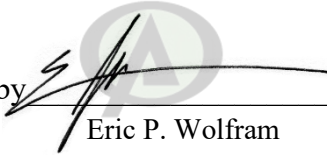
### TEST RESULTS (continued)

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  
Laboratory Manager

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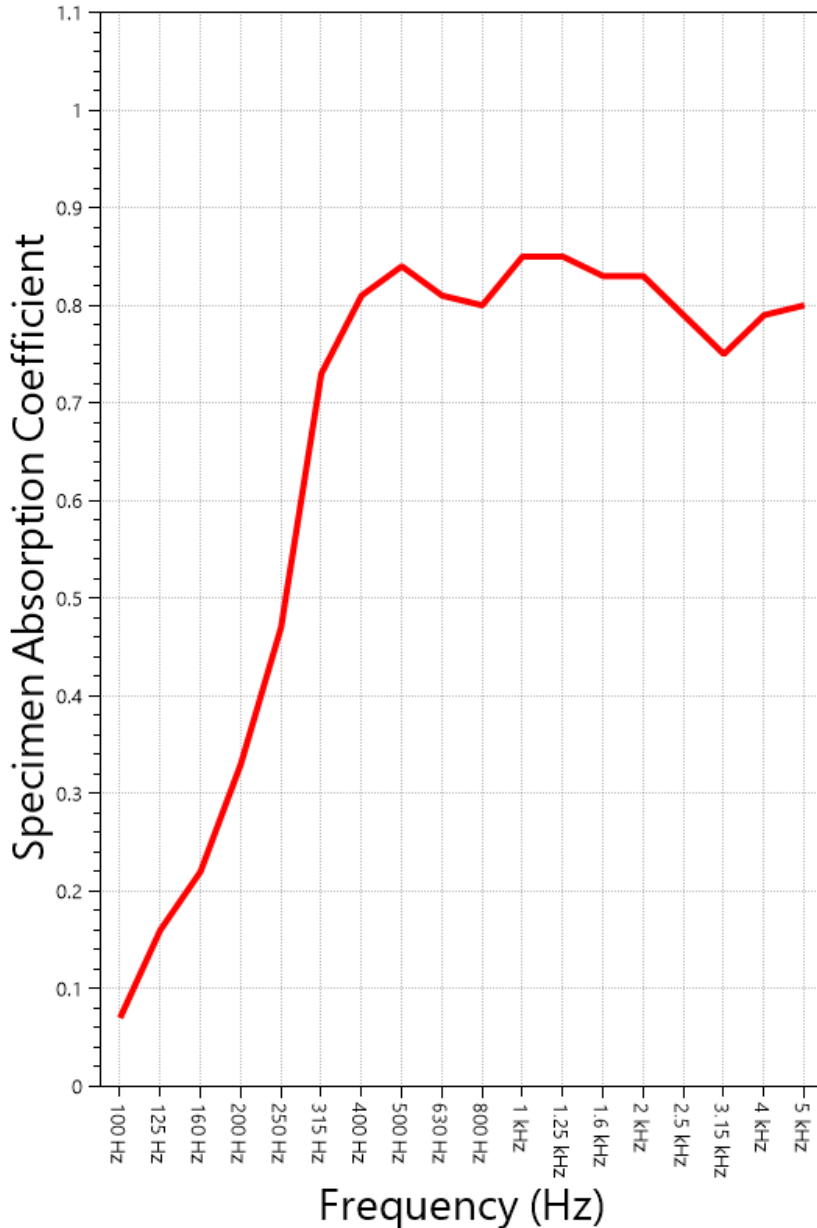
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SOUND ABSORPTION REPORT

Ginkgo panels



SAA = 0.75

NRC = 0.75

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### **APPENDIX A: Extended Frequency Range Data**

Specimen: Ginkgo 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	1.57	0.02
40	7.45	0.09
50	-10.09	-0.12
63	0.91	0.01
80	-3.87	-0.04
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100	6.23	0.07
125	14.01	0.16
160	19.42	0.22
200	29.07	0.33
250	41.17	0.47
315	63.60	0.73
400	70.99	0.81
500	73.65	0.84
630	70.37	0.81
800	70.16	0.80
1000	74.24	0.85
1250	74.16	0.85
1600	72.74	0.83
2000	72.36	0.83
2500	69.32	0.79
3150	65.64	0.75
4000	68.53	0.79
5000	69.48	0.80
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6300	74.95	0.86
8000	85.66	0.98
10000	93.16	1.07
12500	115.29	1.32



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### APPENDIX B: Instruments of Traceability

Specimen: Ginkgo 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: Ginkgo panels (See Full Report)

<u>Date</u>	<u>Revision</u>
2020-03-09	Original report issued
2021-04-15	Page 1-2: Added language to explain and justify a variance from ASTM C423-17 section 9.1.1. -EPW

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END