

625 RIVERBANK DRIVE  
GENEVA, IL 60134  
630-232-0104

## Test Report

[www.riverbankacoustics.com](http://www.riverbankacoustics.com)

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

SPONSOR: **Kirei**  
San Diego, CA

**Sound Absorption**  
**RAL™-A24-056**

CONDUCTED: 2024-02-01

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ON: Cypher Panel

### 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 C423-23: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-23: "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 Cypher Panel. 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**

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Product Name: Cypher Panel  
Manufacturer: Kirei

### SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

#### **Test Specimen**

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Material: PET felt panels, rectangular grooves along length of panels  
Panel Dimensions: 3 panels @ 711 mm (28 in.) wide by 2743 mm (108 in.) long, each  
Groove Width: Grooves @ 25 mm (1 in.) and 51 mm (2 in.) wide  
Groove Spacing: Grooves spaced either 51 mm (2 in.) or 102 mm (4 in.) apart  
Thickness: Thicker part @ 24.52 mm (0.9655 in.)  
                  Thinner part @ 12.76 mm (0.5025 in.)  
Overall Weight: 23.02 kg (50.75 lbs)

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### Overall Specimen Properties

Size: 2.13 m (84.0 in) wide by 2.74 m (108.0 in) long  
Thickness: 0.02 m (0.9655 in)  
Weight: 23.02 kg (50.75 lbs)  
Mass per Unit Area: 3.93 kg/m<sup>2</sup> (0.81 lbs/ft<sup>2</sup>)  
Calculation Area: 5.853 m<sup>2</sup> (63.0 ft<sup>2</sup>)

### Test Environment

Room Volume: 291.98 m<sup>3</sup>  
Temperature: 21.6 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)  
Relative Humidity: 58.0 % ± 3.4 % (Requirement: ≥ 40 % and ≤ 5 % change)  
Barometric Pressure: 98.4 kPa (Requirement not defined)

### MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. Perimeter edges were sealed with tape.

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Figure 1 – Specimen mounted in test chamber



Figure 2 – Individual specimen panel

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Figure 3 – Individual specimen panel

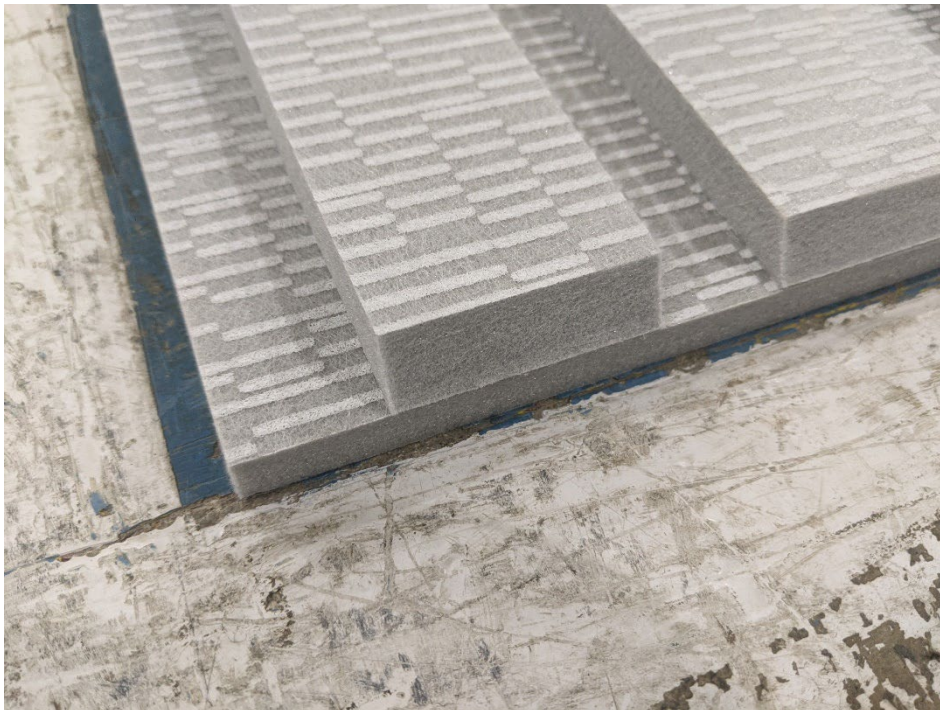


Figure 4 – Detail of specimen materials

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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	-0.16	-1.75	-0.03
** 125	0.25	2.66	0.04
160	0.36	3.83	0.06
200	0.53	5.66	0.09
** 250	0.68	7.37	0.12
315	1.55	16.65	0.26
400	2.29	24.68	0.39
** 500	3.41	36.68	0.58
630	4.27	45.94	0.73
800	5.14	55.32	0.88
** 1000	5.61	60.36	0.96
1250	5.97	64.28	1.02
1600	6.13	65.97	1.05
** 2000	6.29	67.70	1.07
2500	6.56	70.66	1.12
3150	6.12	65.89	1.05
** 4000	6.15	66.15	1.05
5000	6.22	66.97	1.06

**SAA = 0.69**  
**NRC = 0.70**

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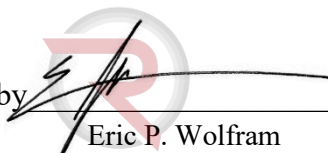
### TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-23 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   
Keith Kimberling  
Test Engineer

Approved by   
Eric P. Wolfram  
Laboratory Manager

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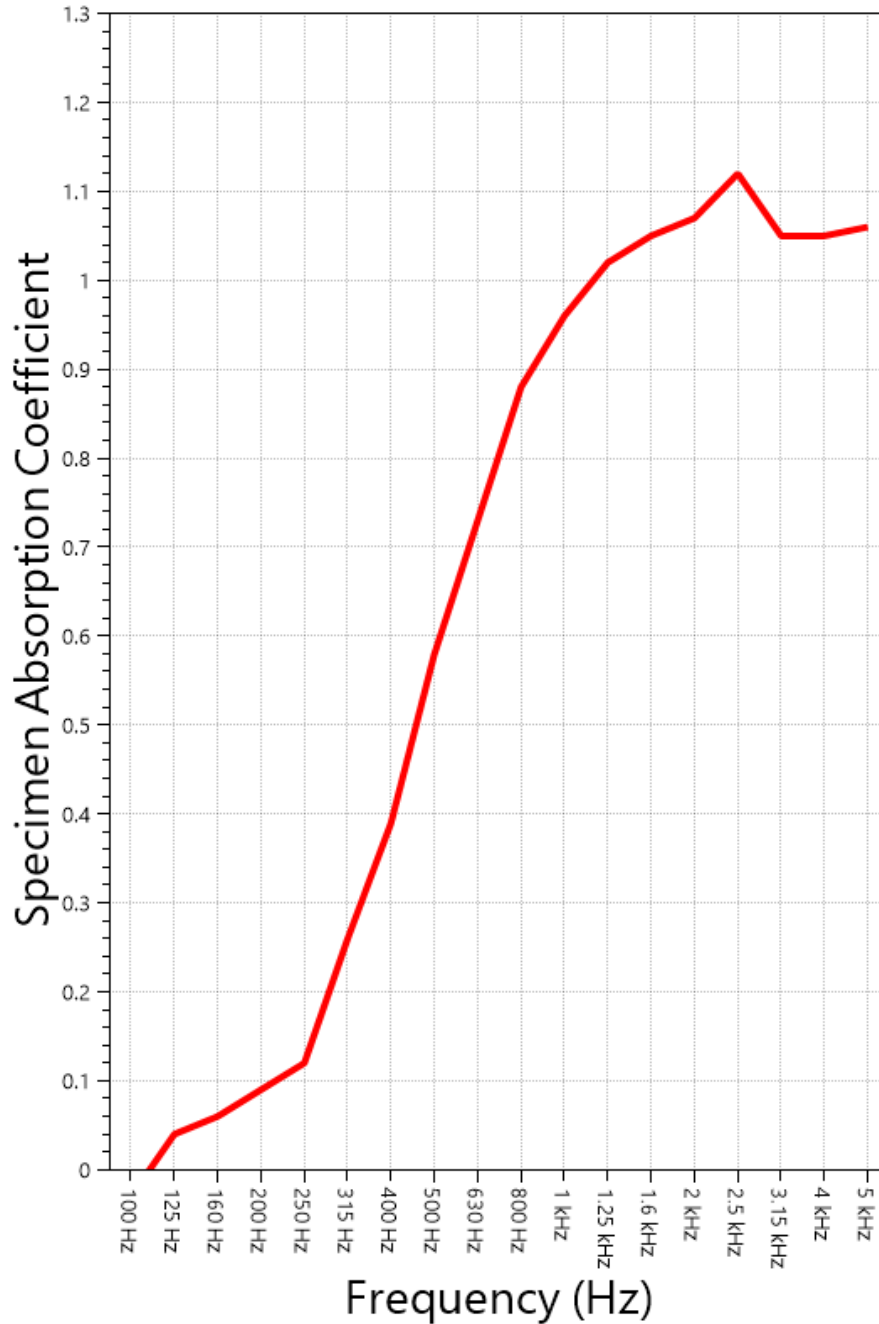
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### SOUND ABSORPTION REPORT

Cypher Panel



**SAA = 0.69**

**NRC = 0.70**

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### APPENDIX A: Extended Frequency Range Data

Specimen: Cypher Panel (See Full Report)

*The following non-accredited data were obtained in accordance with ASTM C423-23, 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	-4.17	-0.07
40	-4.55	-0.07
50	-1.61	-0.03
63	-5.43	-0.09
80	-6.96	-0.11
100	-1.75	-0.03
125	2.66	0.04
160	3.83	0.06
200	5.66	0.09
250	7.37	0.12
315	16.65	0.26
400	24.68	0.39
500	36.68	0.58
630	45.94	0.73
800	55.32	0.88
1000	60.36	0.96
1250	64.28	1.02
1600	65.97	1.05
2000	67.70	1.07
2500	70.66	1.12
3150	65.89	1.05
4000	66.15	1.05
5000	66.97	1.06
6300	68.41	1.09
8000	67.95	1.08
10000	61.79	0.98
12500	62.64	0.99

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### APPENDIX B: Instruments of Traceability

Specimen: Cypher Panel (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	2023-07-17	2024-07-17
Bruel & Kjaer Mic And Preamp G	Type 4943-B-001	2525858	2023-05-03	2024-05-03
Bruel & Kjaer Pistonphone	Type 4228	2781248	2023-07-12	2024-07-12
EXTECH Hygro 6015	SD700	A.116015	2023-05-31	2024-05-31

### APPENDIX C: Revisions to Original Test Report

Specimen: Cypher Panel (See Full Report)

<u>Date</u>	<u>Revision</u>
2024-02-06	Original report issued

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END