

SPONSOR: **Carnegie Fabrics**
Rockville Centre, NY

Sound Absorption
RAL™-A25-339

CONDUCTED: 2025-06-26

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ON: Kirei EchoSky Neu / Baffle System (15 baffles in a single row, spaced 6-3/4" apart)

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 Kirei EchoSky Neu / Baffle System (15 baffles in a single row, spaced 6-3/4" apart). 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

Product Name: Kirei EchoSky Neu / Baffle System
Manufacturer: Carnegie Fabrics

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Product Type: Three (3) baffle systems, five (5) baffles per system, two (2) perpendicular supports per system
Materials: PET
Baffle Dimensions: 15 baffles @ 12.65 mm (0.498 in.) wide by 1829 mm (72 in.) long, each
Depth: Maximum @ 244 mm (9.625 in.)
Minimum @ 181 mm (7.125 in.)
Overall Weight: 17.69 kg (39 lbs)

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SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Physical Measurements (per system)

Dimensions: 0.91 m (36.0 in) wide by 1.83 m (72.0 in) long

Thickness: 0.24 m (9.625 in)

Weight: 5.9 kg (13.0 lbs)

Test Environment

Room Volume: 291.98 m³

Temperature: 23.9 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)

Relative Humidity: 67.75 % ± 0.1 % (Requirement: ≥ 40 % and ≤ 5 % change)

Barometric Pressure: 98.7 kPa (Requirement not defined)

Each sound absorbing baffle had an exposed surface area of 1.00 m² (10.8 ft²). The total exposed surface area of all sound-absorbing baffles was 161 m² (15.0 ft²). These values are based on a simplification of the object geometry to that of the smallest rectangular prism fully enclosing one baffle.

MOUNTING METHOD

Type JV-MOD Mounting: The specimen is an array of 15 spaced sound absorbing baffles suspended from cables such that the closest face is located approximately 1372 mm (54 in.) from the horizontal test surface. This approximates the mounting method of a typical ceiling baffle installation. The baffles were evenly distributed in a single row, spaced 171 mm (6.75 in.) apart. The width of the installed array was 1829 mm (72 in.) and the length of the installed object array was 2559 mm (100.75 in.). The area of extended continuous surface attributed to the array was 5.81 m² (62.6 ft²).

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Figure 1 – Specimen mounted in test chamber

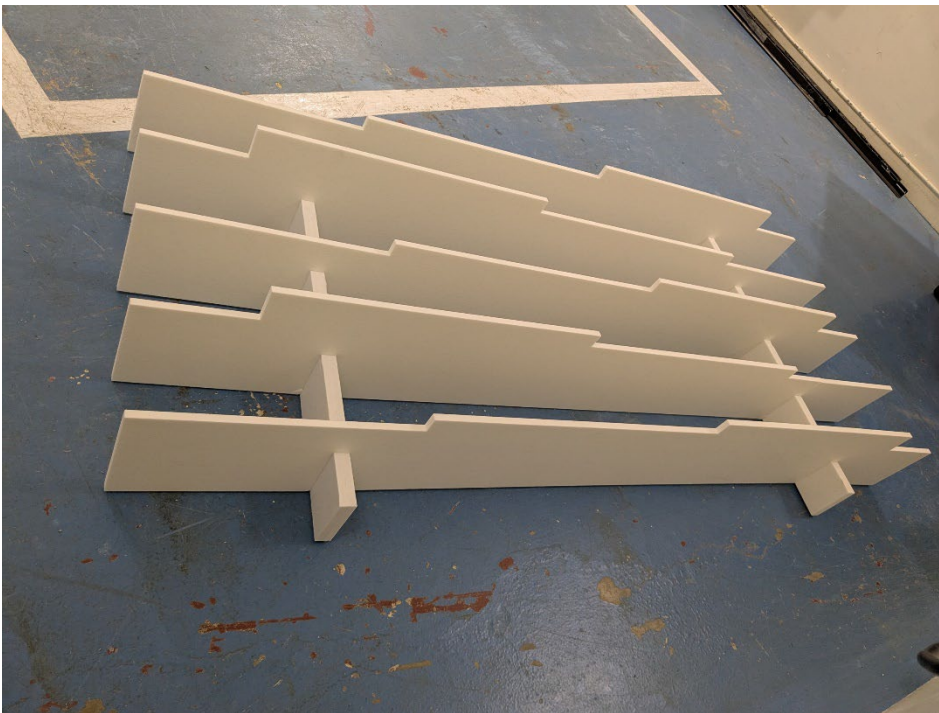


Figure 2 – Specimen baffle system prior to installation

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Figure 3 – Detail of specimen material

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The preferred presentation of sound absorption test results for arrays of spaced objects is sound absorption (m²) per object and total sound absorption (m²) at each one-third-octave band

ASTM C423-23 Appendix X2 allows calculation of sound absorption per m² (SA/m²) based on the projected horizontal surface area attributable to an array of objects. The extended continuous surface area used in this calculation is to be determined using the following procedure:

$S_{array} = (w + w_1) \times (l + 0.3)$ If the set of objects consists of a single row of equal sized objects with equal space between each. (ASTM E423-23 X.2.3.2)

Where:

S_{array} = area of extended continuous surface attributed to the object array, m²

w = the measured width of the installed object array, in meters

w_1 = the distance between objects in the array along the width, in meters

l = the measured length of the object array, in meters

Note: A standard distance of 0.3 meters is added to the array length to account for the assumed area between this set of objects and an adjacent array of objects.

The sound absorption per m² (SA/m²) is calculated based on the following formula:

$$\alpha_{array} = (A_2 - A_1) / S_{array}$$

Where:

α_{array} = sound absorption per m² (SA/m²) of extended continuous surface, no units,

A_1 = absorption of the empty reverberation room, m² and

A_2 = absorption of the room after the specimen has been installed, m².

S_{array} = area of extended continuous surface attributed to the test specimen, m²

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TEST RESULTS (continued)

1/3 Octave Center Frequency (Hz)	Total Absorption		Absorption per Object		α_{array} (Sabins/ft ²) (SA/m ²)
	(m ²)	(Sabins)	(m ² / Object)	(Sabins / Object)	
100	0.64	6.84	0.21	2.28	0.11
** 125	-0.15	-1.64	-0.05	-0.55	-0.03
160	0.59	6.34	0.20	2.11	0.10
200	0.93	9.96	0.31	3.32	0.16
** 250	1.29	13.93	0.43	4.64	0.22
315	2.06	22.23	0.69	7.41	0.36
400	2.67	28.75	0.89	9.58	0.46
** 500	3.12	33.55	1.04	11.18	0.54
630	3.55	38.26	1.18	12.75	0.61
800	4.23	45.57	1.41	15.19	0.73
** 1000	4.76	51.19	1.59	17.06	0.82
1250	5.22	56.19	1.74	18.73	0.90
1600	6.21	66.83	2.07	22.28	1.07
** 2000	6.96	74.96	2.32	24.99	1.20
2500	7.79	83.82	2.60	27.94	1.34
3150	8.17	87.93	2.72	29.31	1.41
** 4000	8.21	88.41	2.74	29.47	1.41
5000	8.45	90.92	2.82	30.31	1.45

Array-NRC 0.70 over 5.81 m² of extended continuous surface area

Array-SAA 0.70 over 5.81 m² of extended continuous surface area

Tested by 
Marc Sciaky
Senior Experimentalist

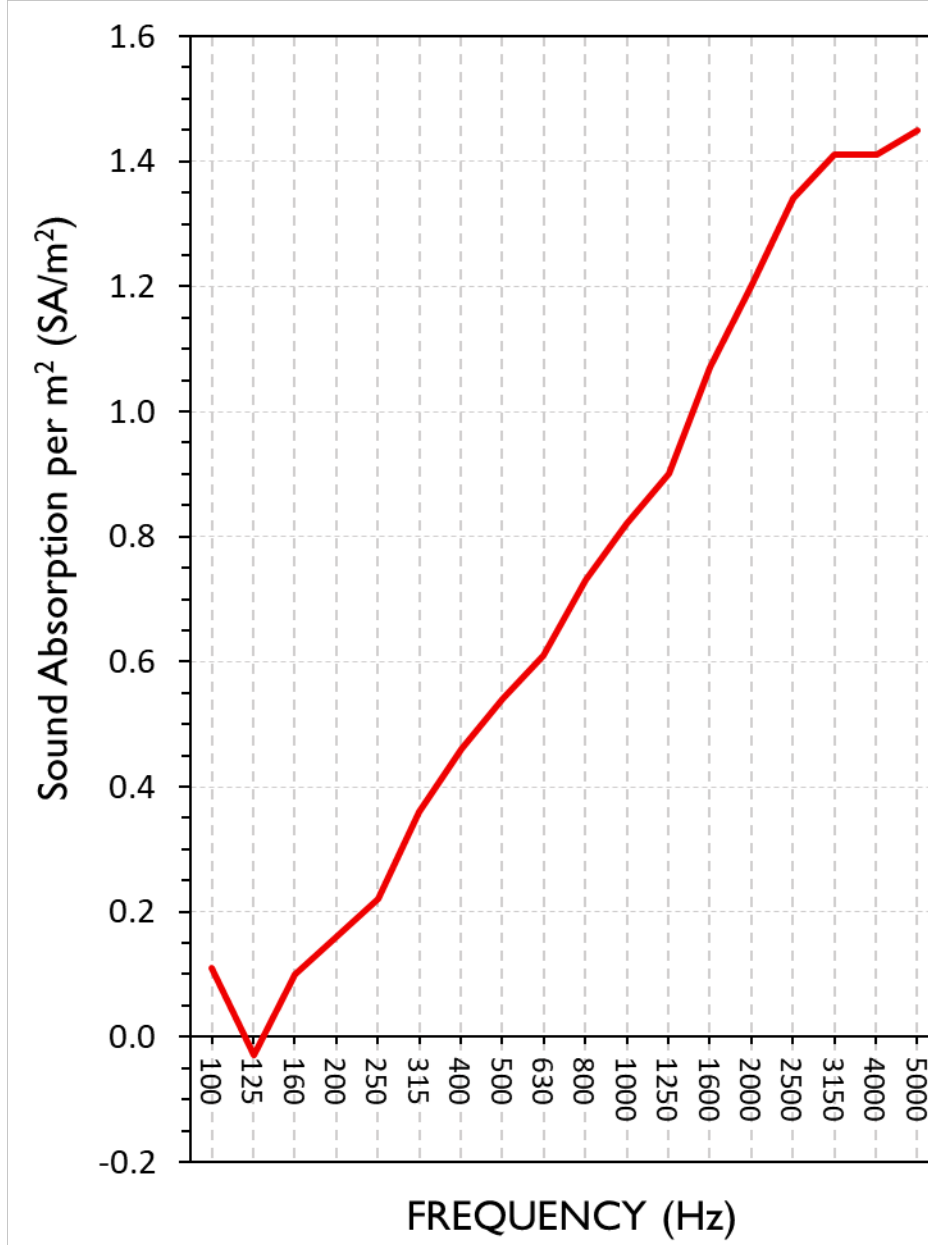
Report by 
Keith Kimberling
Test Engineer

Approved by 
Eric P. Wolfram
Laboratory Manager

Note: Sound absorption per m² (SA/m²), and therefore the reported Single Number Ratings, are highly dependent on the exact sample shape, size, spacing, and extended continuous surface area present in the test and subsequent calculations. Changes to any of these parameters will change the resulting values. These presented results are valid only for the specific configuration present in this test.

SOUND ABSORPTION REPORT

Kirei EchoSky Neu / Baffle System (15 baffles in a single row, spaced 6-3/4" apart)



Array-NRC 0.70 over 5.81 m² of extended continuous surface area
Array-SAA 0.70 over 5.81 m² of extended continuous surface area



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APPENDIX A: Extended Frequency Range Data

Specimen: Kirei EchoSky Neu / Baffle System (15 baffles in a single row, spaced 6-3/4" apart) (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		Absorption per Object		α_{array} (Sabins/ft ²)
	(m ²)	(Sabins)	(m ² / Object)	(Sabins / Object)	(SA/m ²)
31.5	1.03	11.05	0.34	3.68	0.18
40	-0.68	-7.36	-0.23	-2.45	-0.12
50	-0.25	-2.69	-0.08	-0.90	-0.04
63	-0.41	-4.45	-0.14	-1.48	-0.07
80	0.43	4.65	0.14	1.55	0.07
100	0.64	6.84	0.21	2.28	0.11
125	-0.15	-1.64	-0.05	-0.55	-0.03
160	0.59	6.34	0.20	2.11	0.10
200	0.93	9.96	0.31	3.32	0.16
250	1.29	13.93	0.43	4.64	0.22
315	2.06	22.23	0.69	7.41	0.36
400	2.67	28.75	0.89	9.58	0.46
500	3.12	33.55	1.04	11.18	0.54
630	3.55	38.26	1.18	12.75	0.61
800	4.23	45.57	1.41	15.19	0.73
1000	4.76	51.19	1.59	17.06	0.82
1250	5.22	56.19	1.74	18.73	0.90
1600	6.21	66.83	2.07	22.28	1.07
2000	6.96	74.96	2.32	24.99	1.20
2500	7.79	83.82	2.60	27.94	1.34
3150	8.17	87.93	2.72	29.31	1.41
4000	8.21	88.41	2.74	29.47	1.41
5000	8.45	90.92	2.82	30.31	1.45
6300	8.42	90.67	2.81	30.22	1.45
8000	8.29	89.24	2.76	29.75	1.43
10000	8.24	88.68	2.75	29.56	1.42
12500	8.97	96.52	2.99	32.17	1.54



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APPENDIX B: Instruments of Traceability

Specimen: Kirei EchoSky Neu / Baffle System (15 baffles in a single row, spaced 6-3/4" apart) (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	3160-106974	2024-07-19	2025-07-19
Bruel & Kjaer Mic And Preamp G	Type 4943-B-001	2525858	2025-05-09	2026-05-09
Bruel & Kjaer Pistonphone	Type 4228	2781248	2024-07-19	2025-07-19
EXTECH Hygro 662	SD700	A083662	2024-12-30	2025-12-30

APPENDIX C: Revisions to Original Test Report

Specimen: Kirei EchoSky Neu / Baffle System (15 baffles in a single row, spaced 6-3/4" apart) (See Full Report)

<u>Date</u>	<u>Revision</u>
2025-07-07	Original report issued

END