

KIREI

ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM C423 SOUND ABSORPTION TESTING ON AN ECHOEDGE, ABSORPTION PANELS

REPORT NUMBER

M3218.02-303-11-R0

TEST DATE(S)

07/01/21

ISSUE DATE

08/05/21

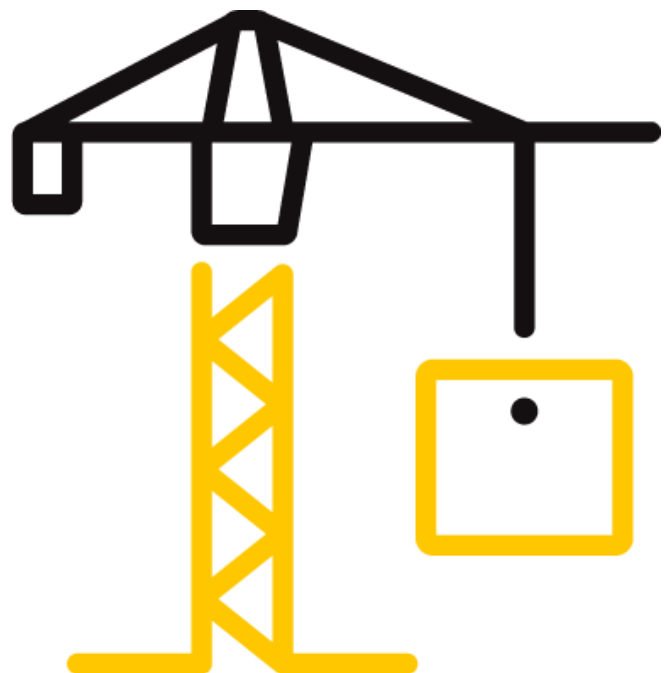
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DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2755 (01/04/21)

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TEST REPORT FOR KIREI

Report No.: M3218.02-303-11-R0

Date: 08/05/21

REPORT ISSUED TO

KIREI

412 N Cedros Ave.

Solana Beach, California 92075

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Kirei to perform a sound absorption test. Results obtained are tested values and were secured by using the designated test methods. The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT test chambers at Intertek B&C located in Lake Forest, California.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

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For INTERTEK B&C:

COMPLETED BY:	Marco Santa Rosa	REVIEWED BY:	Todd D. Kister
	Technician Team Lead		Regional Manager
TITLE:	Acoustical Testing	TITLE:	Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	08/05/21	DATE:	08/05/21

MSR: TDK;ab

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	EchoEdge							
SAMPLE TYPE	Absorption Panels							
MOUNTING TYPE	Type A							
DATA FILE NO.	1/3 OCTAVE SOUND ABSORPTION COEFFICIENTS						NRC	SAA
	125	250	500	1000	2000	4000		
M3218.01B	0.04	0.13	0.44	0.72	0.80	0.99	0.50	0.54

SECTION 3

TEST METHODS

The specimens were evaluated in accordance with the following:

ASTM C423-17, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*

ASTM E795-16, *Standard Practices for Mounting Test Specimens During Sound Absorption Tests*

SECTION 4

SPECIMEN MOUNTING

For the Type A mounting, the test specimen was placed directly against the floor of the reverberation room with the absorptive side facing the sound field. The perimeter of the specimen was sealed to the floor with duct tape.

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SECTION 5 EQUIPMENT

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Card*	National Instruments	PXIe-4464	Data Acquisition Card	INT00392	10/19
Data Acquisition Card*	National Instruments	PXIe-4464	Data Acquisition Card	INT00394	10/19
Data Acquisition Card*	National Instruments	PXIe-4464	Data Acquisition Card	INT00395	09/19
Receive Room Microphone	PBC Piezotronics	378C20	Microphone and Preamplifier	INT00229	04/21
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00230	04/21
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT01542	04/21
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00232	04/21
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00233	04/21
Receive Room Environmental Indicator	Comet	T7510	Receive Room	INT00299	05/21
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	INT00288	06/21

*- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	231 m ³	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor

N/A-Not Applicable

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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Eric T. Rueda	Intertek B&C
Marco Santa-Rosa	Intertek B&C

SECTION 7

TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted. Empty room sound absorption measurements were conducted before the specimen was installed. Full room sound absorption measurements were conducted after the specimen was installed.

For the empty and full room measurements, ten decay measurements were conducted at each of the five microphone positions. Data was obtained at 1/3 octave band frequencies ranging from 80 to 5000 hertz. The air temperature and relative humidity conditions were monitored and recorded during the measurements.

Intertek B&C will store samples of test specimens for four years.

SECTION 8

TEST CALCULATIONS

The Sound Absorption Coefficient is the full room absorption minus the empty room absorption divided by the area of the sample in m². The Sound Absorption Coefficient is dimensionless.

The Noise Reduction Coefficient (NRC) rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000 and 2000 hertz. The average is rounded to the nearest multiple of 0.05.

The Sound Absorption Average (SAA) rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

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SECTION 9

TEST SPECIMEN DESCRIPTION

SERIES/MODEL	EchoEdge
SAMPLE TYPE	Absorption Panels
MOUNTING TYPE	Type A

62, 2.44 m by 2.74 m (96" by 108"), panels were arranged to produce the 2.44 m by 2.48 m (96" by 98") test specimen. The total weight of the specimen was 24.36 kg (53.7 lbs).

DESCRIPTION	THICKNESS	WEIGHT
2" by 108" EchoEdge (teal panels)	12.7 mm 1/2"	0.034 kg/m ² 0.37 lbs/ft ²
2-1/2" by 108" EchoEdge (baby blue panels)	12.7 mm 1/2"	0.062 kg/m ² 0.67 lbs/ft ²

* - Stated per Client/Manufacturer

Photographs are included in Section 11.

The client did not supply a report drawing of the test specimen.

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SECTION 10

TEST RESULTS

ASTM C423 SOUND ABSORPTION TEST



TEST DATE	07/01/21	
DATA FILE NO.	M3218.01B	
CLIENT	Kirei	
DESCRIPTION	Series/Model: EchoEdge, absorption panel	
TECHNICIAN	Eric T Rueda	
SPECIMEN AREA	6.69 m ²	
MOUNTING TYPE	Type A	
	EMPTY	FULL
TEMP °C	23.9	23.9
RH %	64	62
B.P. (mb)	1014	1014

FREQ (Hz)	EMPTY ROOM ABSORPTION (m ²)	UNCERTAINTY	FULL ROOM ABSORPTION (m ²)	UNCERTAINTY	ABSORPTION COEFFICIENT	RELATIVE UNCERTAINTY
80	4.68	0.376	4.76	0.268	0.01	0.069
100	4.55	0.410	4.77	0.351	0.03	0.081
125	4.92	0.393	5.19	0.255	0.04	0.070
160	4.88	0.119	5.13	0.038	0.04	0.019
200	5.87	0.052	6.45	0.028	0.09	0.009
250	6.77	0.106	7.62	0.095	0.13	0.021
315	6.61	0.024	8.00	0.065	0.21	0.010
400	5.46	0.036	7.58	0.043	0.32	0.008
500	4.71	0.024	7.63	0.091	0.44	0.014
630	4.95	0.045	8.79	0.036	0.58	0.009
800	4.94	0.038	9.38	0.028	0.66	0.007
1000	4.86	0.012	9.65	0.019	0.72	0.003
1250	4.76	0.015	9.85	0.010	0.76	0.003
1600	4.90	0.007	10.24	0.012	0.80	0.002
2000	5.50	0.013	10.87	0.136	0.80	0.020
2500	5.64	0.011	11.89	0.093	0.93	0.014
3150	5.71	0.012	12.00	0.011	0.94	0.002
4000	5.88	0.005	12.48	0.005	0.99	0.001
5000	6.23	0.008	13.06	0.005	1.02	0.001

NRC RATING	0.50	(Noise Reduction Coefficient)
SAA RATING	0.54	(Sound Absorption Average)

Notes: 1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.
2) The SAA rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

TEST REPORT FOR KIREI

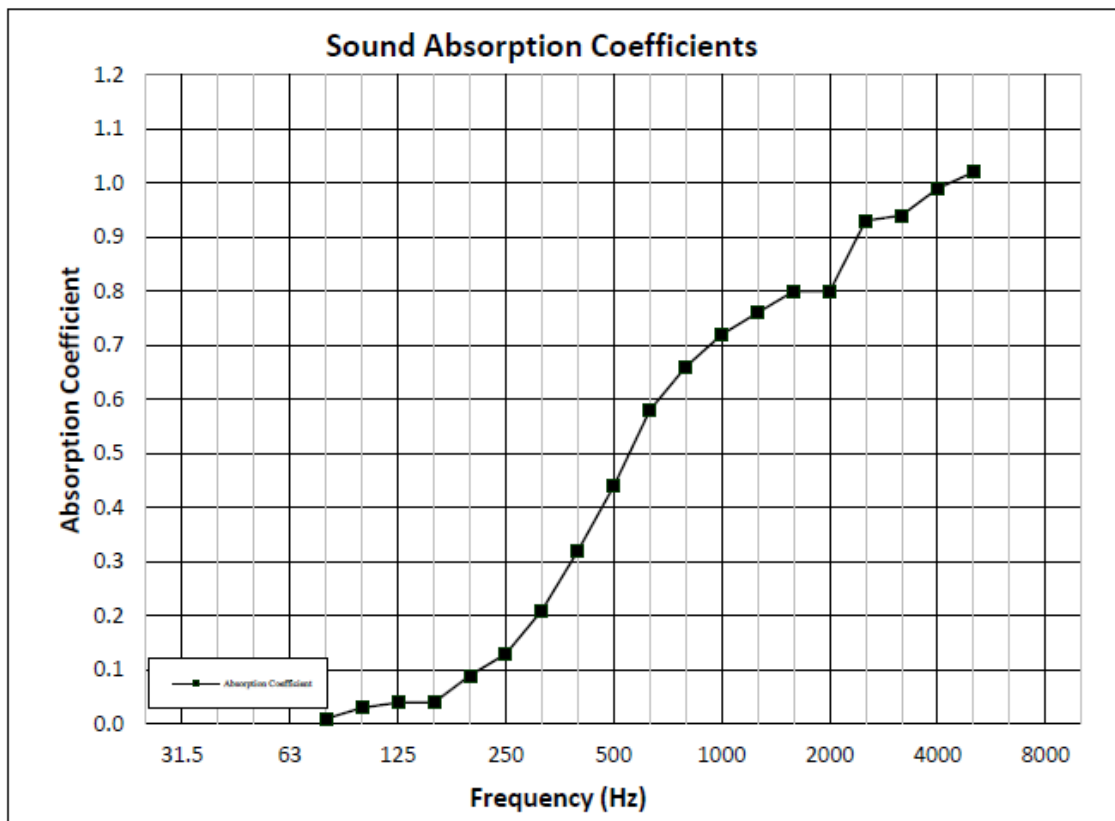
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ASTM C423 SOUND ABSORPTION TEST



TEST DATE	07/01/21	
DATA FILE NO.	M3218.01B	
CLIENT	Kirei	
DESCRIPTION	Series/Model: EchoEdge, absorption panel	
TECHNICIAN	Eric T Rueda	
SPECIMEN AREA	6.69 m ²	
MOUNTING TYPE	Type A	
	EMPTY	FULL
TEMP °C	23.9	23.9
RH %	64	62
B.P. (mb)	1014	1014



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SECTION 11

PHOTOGRAPHS

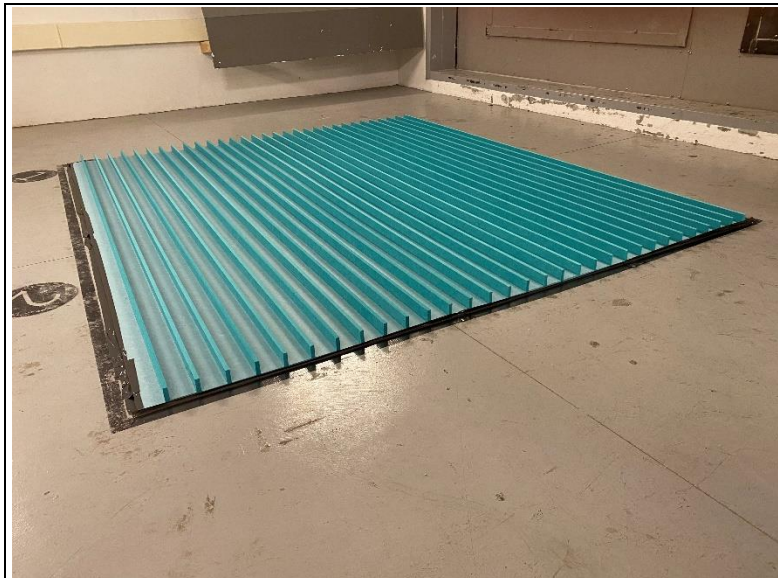


Photo No. 1
View of Test Specimen



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SECTION 12

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	08/05/21	N/A	Original Report Issue