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

# Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Kirei**
Solana Beach, CA

**Sound Absorption**
**RAL™-A19-152**

CONDUCTED: 2019-04-05



ON: Fold ACT adhered to 0.5 in. gypsum board

## 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 17025:2005 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 Fold ACT adhered to 0.5 in. gypsum board. 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: | Fold ACT |
| Manufacturer: | Kirei |
| Thickness: | 12 mm (0.472 in.) |
| Backing Material: | Gypsum board, thickness @ 12.7 mm (0.5 in.) |

## SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

**Test Specimen**

| | |
|---|---|
| Materials: | Folded felt panel adhered to gypsum board |
| Dimensions: | 16 @ 584.2 mm (23 in.) x 584.2 mm (23 in.) |
| | 14 @ 101.6 mm (4 in.) x 174.62 mm (6.875 in.) |
| | 4 @ 406.4 mm (16 in.) x 584.2 mm (23 in.) |
| Thickness: | Gypsum board @ 12.7 mm (0.5 in.) |
| | Overall minimum @ 24.7 mm (0.972 in.) |
| | Overall maximum @ 149.22 mm (5.875 in.) |

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

Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05

**RAL™-A19-152**


**Test Specimen** (continued)

| | |
|---|---|
| Key Geometry: | 12 mm (0.472 in.) thick felt panels notched and folded into corrugation pattern, linear depth profile<br>Corrugation pitch @ 195 mm (7.677 in.)<br>Ridge width @ 72 mm (2.835 in.) |
| Overall Weight: | 74.5 kg (164.25 lbs) |

**Overall Specimen Properties**

| | |
|---|---|
| Size: | 2.74 m (108.0 in) wide by 2.44 m (96.0 in) long |
| Thickness: | 0.15 m (5.875 in) |
| Weight: | 74.5 kg (164.25 lbs) |
| Mass per Unit Area: | 11.14 kg/m² (2.28 lbs/ft²) |
| Calculation Area: | 6.689 m² (72 ft²) |

**Test Environment**

| | |
|---|---|
| Room Volume: | 291.98 m³ |
| Temperature: | 21.4 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change) |
| Relative Humidity: | 63.7 % ± 0.0 % (Requirement: ≥ 40 % and ≤ 5 % change) |
| Barometric Pressure: | 99.1 kPa (Requirement not defined) |

MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. Perimeter edges were left exposed, as would be typical of a field installation of the product under test.

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

Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05



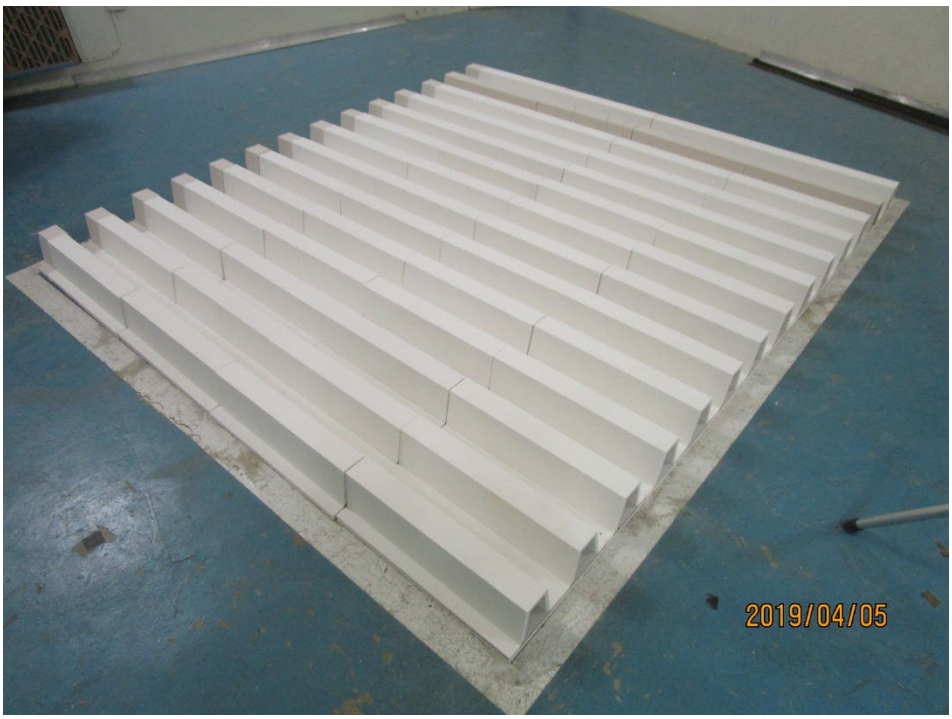



Figure 1 – Specimen mounted in test chamber


Figure 2 – Detail of specimen composition

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

Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05

**RAL™-A19-152**


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 | 0.97 | 10.45 | 0.15 |
| ** 125 | 1.36 | 14.68 | 0.20 |
| 160 | 1.97 | 21.19 | 0.29 |
| 200 | 2.85 | 30.67 | 0.43 |
| ** 250 | 3.78 | 40.71 | 0.57 |
| 315 | 5.52 | 59.43 | 0.83 |
| 400 | 6.21 | 66.83 | 0.93 |
| ** 500 | 6.72 | 72.35 | 1.00 |
| 630 | 7.26 | 78.15 | 1.09 |
| 800 | 7.27 | 78.21 | 1.09 |
| ** 1000 | 6.72 | 72.30 | 1.00 |
| 1250 | 6.52 | 70.18 | 0.97 |
| 1600 | 7.38 | 79.43 | 1.10 |
| ** 2000 | 8.00 | 86.15 | 1.20 |
| 2500 | 8.03 | 86.45 | 1.20 |
| 3150 | 8.09 | 87.09 | 1.21 |
| ** 4000 | 8.15 | 87.70 | 1.22 |
| 5000 | 8.35 | 89.91 | 1.25 |

**SAA = 0.95**
**NRC = 0.95**

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

# Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05

**RAL™-A19-152**


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*

Digitally signed
by Eric P Wolfram
Date: 2026.01.21
14:00:07 -06'00'

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

Test Report

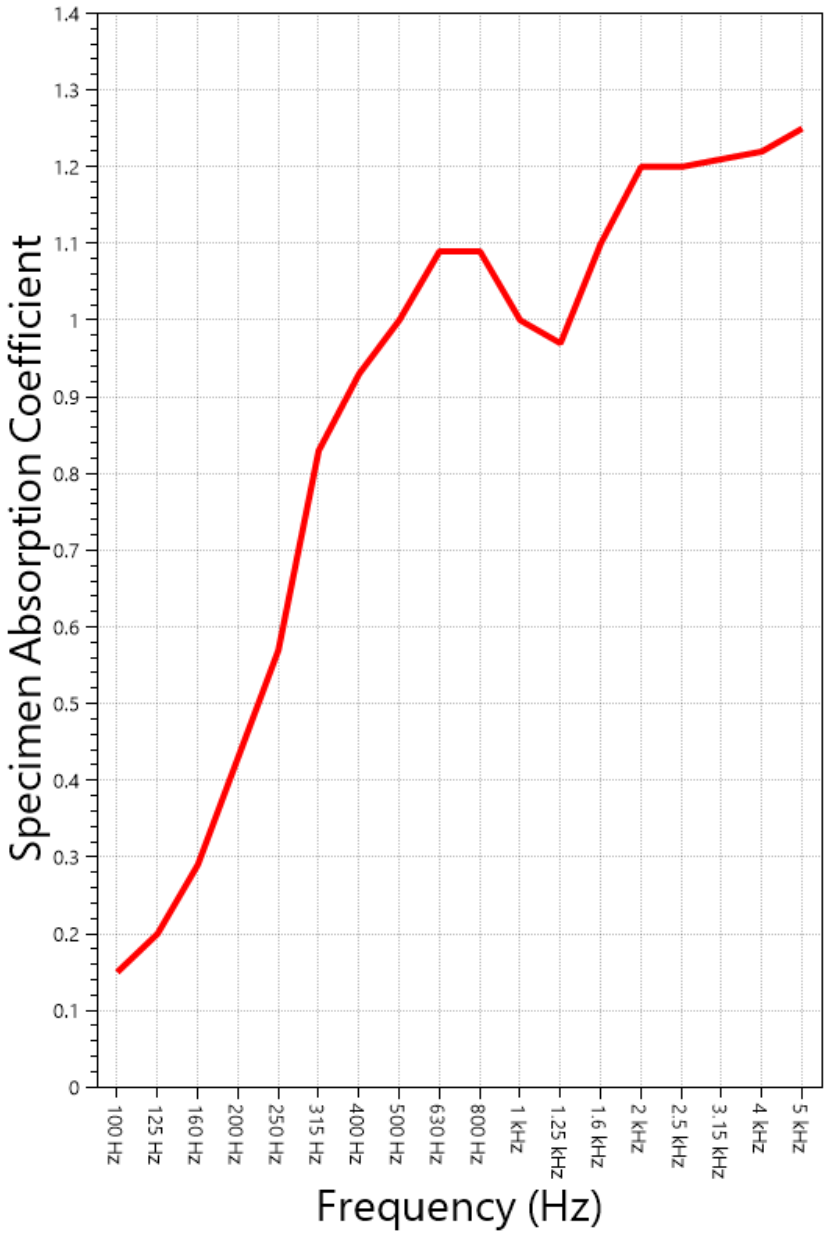
www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05

**RAL™-A19-152**


## SOUND ABSORPTION REPORT

Fold ACT adhered to 0.5 in. gypsum board




**SAA = 0.95**
**NRC = 0.95**

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

Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05

**RAL™-A19-152**


## APPENDIX A: Extended Frequency Range Data

Specimen: Fold ACT adhered to 0.5 in. gypsum board (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 | 5.27 | 0.07 |
| 40 | -3.42 | -0.05 |
| 50 | 3.75 | 0.05 |
| 63 | -4.62 | -0.06 |
| 80 | -8.54 | -0.12 |
| 100 | 10.45 | 0.15 |
| 125 | 14.68 | 0.20 |
| 160 | 21.19 | 0.29 |
| 200 | 30.67 | 0.43 |
| 250 | 40.71 | 0.57 |
| 315 | 59.43 | 0.83 |
| 400 | 66.83 | 0.93 |
| 500 | 72.35 | 1.00 |
| 630 | 78.15 | 1.09 |
| 800 | 78.21 | 1.09 |
| 1000 | 72.30 | 1.00 |
| 1250 | 70.18 | 0.97 |
| 1600 | 79.43 | 1.10 |
| 2000 | 86.15 | 1.20 |
| 2500 | 86.45 | 1.20 |
| 3150 | 87.09 | 1.21 |
| 4000 | 87.70 | 1.22 |
| 5000 | 89.91 | 1.25 |
| 6300 | 89.79 | 1.25 |
| 8000 | 86.34 | 1.20 |
| 10000 | 84.50 | 1.17 |
| 12500 | 86.55 | 1.20 |

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

Test Report

www.riverbankacoustics.com
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

**Kirei**
2019-04-05

**RAL™-A19-152**


## APPENDIX B: Instruments of Traceability

Specimen: Fold ACT adhered to 0.5 in. gypsum board (See Full Report)

| Description | Model | Serial Number | Date of Certification | Calibration Due |
|---|---|---|---|---|
| System 1 | Type 3160-A-042 | 3160-106968 | 2018-08-09 | 2019-08-09 |
| Bruel & Kjaer Mic And Preamp A | Type 4943-B-001 | 2311428 | 2018-09-28 | 2019-09-28 |
| Bruel & Kjaer Pistonphone | Type 4228 | 2781248 | 2018-08-06 | 2019-08-06 |
| EXTECH Hygro 662 | SD700 | A083662 | 2018-11-29 | 2019-11-29 |

## APPENDIX C: Revisions to Original Test Report

Specimen: Fold ACT adhered to 0.5 in. gypsum board (See Full Report)

| Date | Revision |
|---|---|
| 2019-04-18 | Original report issued |
| 2026-01-21 | All Pages: Product designation changed to Fold ACT (formerly EchoFold Mini) to facilitate sponsor's revised product identification. -EPW |

END