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

An ALION Technical Center

Test Report

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WALLACE CLEMENT SABINE

FOR: **ACOUSTIMAC**
Tampa, FL

**Sound Transmission Loss**
**RAL-TL16-377**

CONDUCTED: 2016-07-25



ON: Mass Loaded Vinyl

## TEST METHOD

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 E90-09: "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements." The single number rating of the specimen was calculated according to ASTM E413-10: "Classification for Rating Sound Insulation." A description of the measuring procedure and room qualifications is available upon request.

## DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Mass Loaded Vinyl. A full external visual inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

**Specimen**

| | |
|---|---|
| Material: | Mass Loaded Vinyl |
| Dimensions: | 1206.5 mm (47.5 in.) x 2438.4 mm (96 in.) |
| Thickness: | 3.33 mm (0.131 in.) |

**Physical Measures**

| | |
|---|---|
| Overall Dimensions: | 1.21 m (47.50 in.) wide by 2.44 m (96.00 in.) high |
| Overall Thickness: | 3.33 mm (0.131 in.) |
| Overall Weight: | 17.01 kg (37.50 lbs.) |
| Transmission Area: | 2.93 $m^2$ (31.50 $ft^2$) |
| Mass per Unit Area: | 5.76 $kg/m^2$ (1.18 $lbs./ft^2$) |

## Test Aperture

| | |
|---|---|
| Size: | 1.22 m (4.0 ft.) by 2.44 m (8.0 ft.) |
| Filler Wall: | None |
| Sealed: | Entire periphery (both sides) with dense mastic |

## Test Environment

Source Room

| | |
|---|---|
| Volume: | 178.3 $m^3$ (6297.6 $ft^3$) |
| Temperature: | 23±1ºC (74±1ºF) |
| Humidity: | 54±1% |

Receive Room

| | |
|---|---|
| Volume: | 139.4 $m^3$ (4923.6 $ft^3$) |
| Temperature: | 22±1ºC (72±1ºF) |
| Humidity: | 56±2% |

Requirements

| | |
|---|---|
| Temperature: | 22º C +/- 2° C, not more than 3° C change over all tests. |
| Humidity: | ≥ 30% RH, not more than +/- 3% change over all tests. |


Figure 1 – Specimen mounted in the test opening.


Figure 2 – Detail of the test specimen.

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TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the transmission loss test data is within the limits set by the ASTM Standard E90-09.

| FREQ. | T.L. | C.L. | DEF. | FREQ. | T.L. | C.L. | DEF. |
|---|---|---|---|---|---|---|---|
| 100 | 17 | 0.54 | | 800 | 26 | 0.17 | 3 |
| 125 | 18 | 0.56 | | 1000 | 28 | 0.14 | 2 |
| 160 | 16 | 0.60 | | 1250 | 29 | 0.19 | 2 |
| 200 | 18 | 0.47 | | 1600 | 31 | 0.13 | |
| 250 | 19 | 0.39 | 1 | 2000 | 32 | 0.10 | |
| 315 | 20 | 0.32 | 3 | 2500 | 32 | 0.06 | |
| 400 | 21 | 0.31 | 5 | 3150 | 32 | 0.08 | |
| 500 | 22 | 0.24 | 5 | 4000 | 33 | 0.08 | |
| 630 | 24 | 0.17 | 4 | 5000 | 34 | 0.06 | |

STC=27

ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
T.L. = TRANSMISSION LOSS, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 25)
STC = SOUND TRANSMISSION CLASS

Tested by _____
Marc Sciaky
*Experimentalist*

Report by _____
Miles Possing
*Acoustician*

Approved by _____
Eric P. Wolfram
*Laboratory Manager*

Digitally signed by Eric Wolfram
DN: cn=Eric Wolfram, o=Alion Science and Technology, ou=Riverbank Acoustical Laboratories, email=ewolfram@alionscience.com, c=US
Date: 2016.08.11 12:39:13 -05'00'

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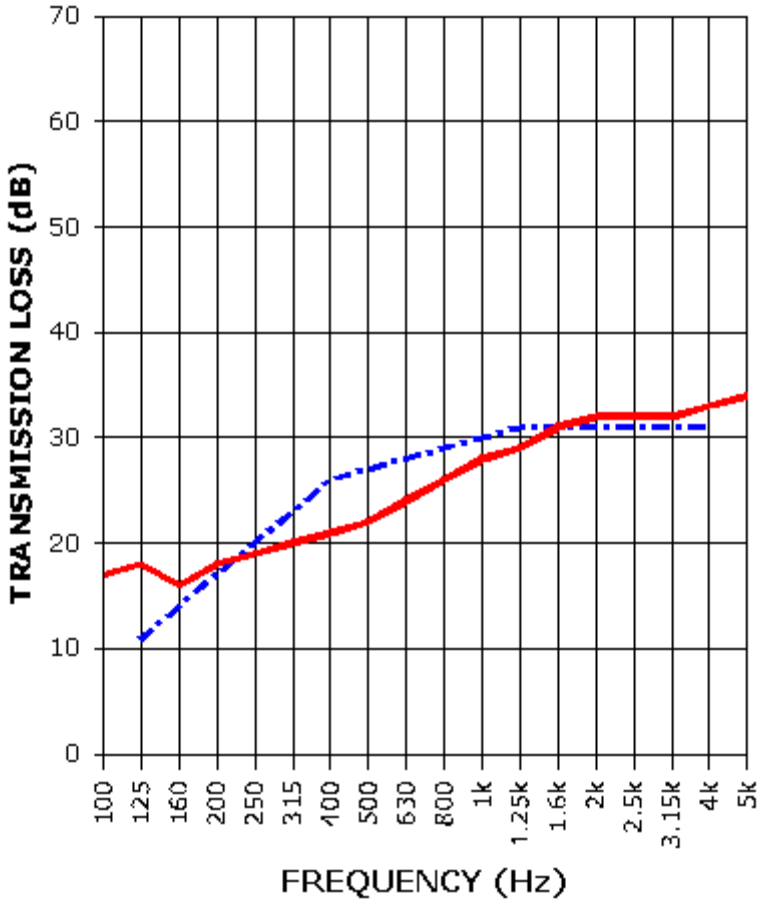
# SOUND TRANSMISSION REPORT

Mass Loaded Vinyl

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**TRANSMISSION LOSS**
**SOUND TRANSMISSION LOSS CONTOUR**

## APPENDIX A: Extended Frequency Range Data

Specimen: Mass Loaded Vinyl (See Full Report)

*The following non-accredited data were obtained in accordance with ASTM E90-09, 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) | **Sound Transmission Loss** (dB) | **Uncertainty** (95% ±) |
|---|---|---|
| 31.5 | 7 | 1.44 |
| 40 | 17 | 0.82 |
| 50 | 14 | 0.89 |
| 63 | 10 | 1.02 |
| 80 | 9 | 0.84 |
| 100 | 17 | 0.54 |
| 125 | 18 | 0.56 |
| 160 | 16 | 0.60 |
| 200 | 18 | 0.47 |
| 250 | 19 | 0.39 |
| 315 | 20 | 0.32 |
| 400 | 21 | 0.31 |
| 500 | 22 | 0.24 |
| 630 | 24 | 0.17 |
| 800 | 26 | 0.17 |
| 1000 | 28 | 0.14 |
| 1250 | 29 | 0.19 |
| 1600 | 31 | 0.13 |
| 2000 | 32 | 0.10 |
| 2500 | 32 | 0.06 |
| 3150 | 32 | 0.08 |
| 4000 | 33 | 0.08 |
| 5000 | 34 | 0.06 |
| 6300 | 36 | 0.05 |
| 8000 | 38 | 0.05 |
| 10000 | 40 | 0.06 |
| 12500 | 42 | 0.09 |

**APPENDIX B: Instruments of Traceability**
Specimen: Mass Loaded Vinyl (See Full Report)

| Description | Model | Serial Number | Date of Certification | Calibration Due |
|---|---|---|---|---|
| Bruel & Kjaer Pulse Analyzer - System 3 | Type 3560-C | 2647140 | 2016-04-12 | 2017-04-12 |
| Bruel & Kjaer Mic And Preamp A | Type 4943-B-001 | 2311428 | 2015-09-14 | 2016-09-14 |
| G.R.A.S Pistonphone | Type42AF-1 | 80001 | 2015-08-14 | 2016-08-14 |
| Omega Digital Thermo-Hygrometer B | Model # RH411 | H0101841 | 2015-12-28 | 2016-12-28 |
| Omega Digital Thermo-Hygrometer E | Model # RH411 | H0100711 | 2015-12-28 | 2016-12-28 |

END