

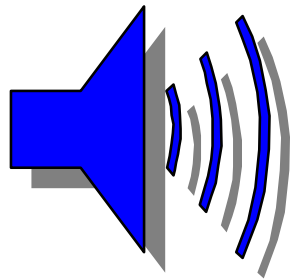
RSIC-1 ACOUSTIC ASSEMBLY

WALL ASSEMBLY

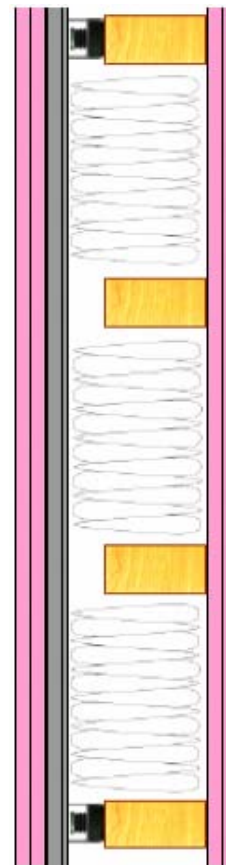


DIRECT FIX TO STUD

RAL 211 Assembly 4 STC 62



STC 62



CONSTRUCTION

- * 2 Layers 5/8" Gypsum
- * 7/8" x 25 guage furring Channel @ 24" o.c.
- * RSIC-1 clips at 48" o.c.
- * 2x4 wood studs @ 16" o.c.
- * 6" unfaced fiberglass insulation cavity fully filled
- * 2 Layers 5/8" Gypsum

- * Test Number TL01-211 RAL
- * UL U305, U309, U311, U331, U334



UL U305, U309
U311, U331 U334

**SOUND
TRANSMISSION
CLASS**

STC 62

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

OF
IIT RESEARCH INSTITUTE

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

REPORT

FOR: PAC International, Inc.

Sound Transmission Loss Test
RAL™-TL01-211

ON: Resilient Sound Isolation Clip (RSIC-1) on
2 x 4 Timber Framing 16 Inches On Center
With Double Layer 5/8 Inch Gypsum Board Each Side

Page 1 of 4

CONDUCTED: 14 August 2001

REVISION: 3 April 2002

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-99 and E413-87, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure. A description of the measuring technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the client as Resilient Sound Isolation Clip (RSIC-1) on 2 x 4 timber framing 16 inches on center with double layer 5/8 inch gypsum board each side. The overall dimensions of the specimen as measured were 4.27 m (168 in.) wide by 2.74 m (108 in.) high and 194 mm (7.625 in.) thick. The specimen was installed directly into the laboratory's 2.74 m (9 ft) by 4.27 m (14 ft) wood-lined steel frame and was sealed on the periphery (both sides) with a dense mastic. The description of the specimen was as follows: The test specimen consisted of a two-by-four wood stud wall assembly with 159 mm (6.25 in.) thick R-19 fiberglass and a double layer of 16 mm (0.625 in.) Type X gypsum board on the receive side. RSIC-1 clips and hat track were used on the source side with a double layer of 16 mm (0.625 in.) Type X gypsum board. A more complete description follows.

Floor and Ceiling Plates: The two 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 4.27 m (168 in.) long SPF wood plates were attached to the top and bottom of the test frame with 16d nails on 610 mm (24 in.) centers.

Studs: The twelve 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 2.67 m (105 in.) long SPF wood studs and runners were spaced on 406 mm (16 in.) centers. The studs were attached to the frame with 8d nails.

Insulation: The cavities formed by the studs were friction fit with R-19 unfaced fiberglass insulation batts measuring 159 mm (6.25 in.) thick and 387 mm (15.25 in.) wide.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



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PAC International, Inc.

RAL™-TL01-211

14 August 2001

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Perimeter Caulking: Acoustical sealant was applied to test frame perimeter prior to installation of the face layer of gypsum board.

RSIC-1 Clips and Hat Track: On the source side of the wall, PAC International RSIC-1 clips were attached to studs on 610 mm (24 in.) centers vertically and on 1.22 m (48 in.) centers horizontally. The bottom row of clips was installed 76 mm (3 in.) from the bottom of the test frame. Clips in subsequent rows were staggered 406 mm (16 in.) horizontally from adjacent rows. All RSIC-1 clips were attached to studs with a single #8, 64 mm (2.5 in.) long coarse thread drywall screw. A total of thirty clips were used. The hat track was 25 gauge roll-formed furring channel which measured 22 mm (0.875 in.) deep by 65 mm (2.56 in.) wide. Six rows of track were mounted to the RSIC clips and were overlapped 152 mm (6 in.) and double wire tied with 18 gauge tie wire as necessary.

Gypsum Wallboard: A double layer of 16 mm (0.625 in.) Type X gypsum board was applied vertically to the studs on the receive side of the wall. Horizontal joints were offset 305 mm (12 in.). They were attached to the studs with 32 mm (1.25 in.) and 57 mm (2.25 in.) long, respectively, Type W bugle head drywall screws on 305 mm (12 in.) centers. A layer of 16 mm (0.625 in.) Type X gypsum board was applied horizontally to the hat track on the source side of the wall with 25 mm (1 in.) Type S bugle head drywall screws on 305 mm (12 in.) centers. A second layer of 16 mm (0.625 in.) Type X gypsum board was applied vertically to the hat track on the source side of the wall with 41 mm (1.625 in.) long Type S bugle head drywall screws on 406 mm (16 in.) centers. All joints were taped.

The weight of the specimen as measured was 617.7 kg (1,361.75 lbs.), an average of 52.7 kg/m² (10.8 lbs/ft²). The transmission area used in the calculations was 11.7 m² (126 ft²). The source and receiving room temperatures at the time of the test were 26±2°C (78±2°F) and 55±2% relative humidity. The source and receive reverberation room volumes were 179m³ (6,298 ft³) and 177 m³ (6,255 ft³), respectively.

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NVLAD

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RAL™-TL01-211

14 August 2001

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REVISION: 3 April 2002

TEST RESULTS

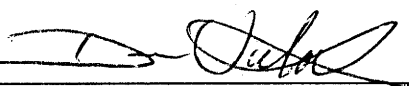
Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the TL test data is within the limits set by the ASTM Standard E90-99.


| <u>FREQ.</u> | <u>T.L.</u> | <u>C.L.</u> | <u>DEF.</u> | <u>FREQ.</u> | <u>T.L.</u> | <u>C.L.</u> | <u>DEF.</u> |
|--------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|
| 100 | 39 | 5.22 | 0 | 800 | 62 | 0.11 | 2 |
| 125 | 46 | 1.10 | 0 | 1000 | 64 | 0.07 | 1 |
| 160 | 44 | 1.03 | 5 | 1250 | 65 | 0.06 | 1 |
| 200 | 51 | 0.43 | 1 | 1600 | 67 | 0.08 | 0 |
| 250 | 55 | 0.28 | 0 | 2000 | 64 | 0.04 | 2 |
| 315 | 59 | 0.13 | 0 | 2500 | 63 | 0.05 | 3 |
| 400 | 59 | 0.15 | 2 | 3150 | 67 | 0.08 | 0 |
| 500 | 59 | 0.11 | 3 | 4000 | 69 | 0.13 | 0 |
| 630 | 60 | 0.12 | 3 | 5000 | 73 | 0.12 | 0 |

STC=62

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
STC = SOUND TRANSMISSION CLASS

Tested by 
Dean Victor
Senior Experimentalist

Approved by 
David L. Moyer
Laboratory Manager

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NVLAP

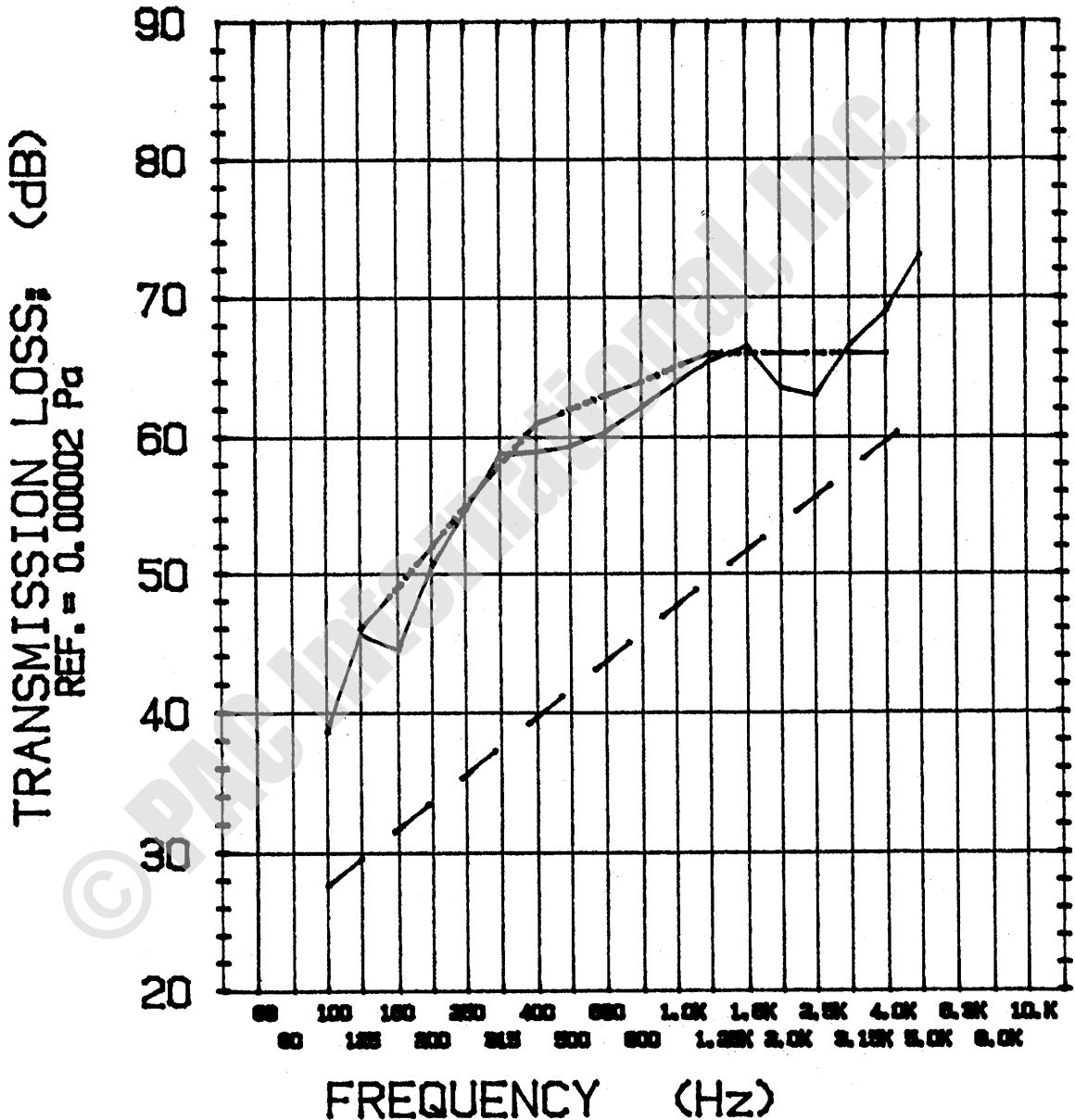
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REPORT

TRANSMISSION LOSS REPORT

RAL-TL01-211

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- TRANSMISSION LOSS
- - - SOUND TRANSMISSION CLASS CONTOUR
- . - MASS LAW CONTOUR

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FOR: PAC International, Inc.

ON: RAL™TL01-211: Resilient Sound Isolation Clip (RSIC-1) on
2 x 4 Timber Framing 16 Inches On Center
With Double Layer 5/8 Inch Gypsum Board Each Side

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phone: 630 . 232 . 0104
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CONDUCTED: 14 August 2001

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SUBJECT: Outdoor Indoor Transmission Class Determination (OITC)

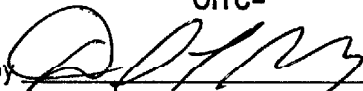
CLASSIFICATION

Unless otherwise designated, the Outdoor Indoor Transmission Class (OITC) determination as reported below was made with explicit conformity to the procedures described in the ASTM E1332-90 test standard. Test Method ASTM E90 was used to obtain the sound transmission loss data. This rating is based on an average transportation noise source spectrum and an A-weighted sound level reduction, either of which may be inappropriate for some applications.

| One-third Octave Band Center Frequency, Hz | Reference Sound Spectrum, dB | Test Specimen Transmission Loss, dB |
|---|---------------------------------|--|
| 80 | 103 | 36 |
| 100 | 102 | 39 |
| 125 | 101 | 46 |
| 160 | 98 | 44 |
| 200 | 97 | 51 |
| 250 | 95 | 55 |
| 315 | 94 | 59 |
| 400 | 93 | 59 |
| 500 | 93 | 59 |
| 630 | 91 | 60 |
| 800 | 90 | 62 |
| 1000 | 89 | 64 |
| 1250 | 89 | 65 |
| 1600 | 88 | 67 |
| 2000 | 88 | 64 |
| 2500 | 87 | 63 |
| 3150 | 85 | 67 |
| 4000 | 84 | 69 |

OITC= 51

Calculated and Submitted by



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FOR: PAC International, Inc.

ON: Resilient Sound Isolation Clip (RSIC-1) Test Walls #1-4

Page 1 of 1

CONDUCTED: 13-14 August 2001

SUBJECT: Additional Frequency Data for Transmission Loss Testing

As requested by the client, transmission loss (TL) values were calculated at additional test frequencies. Although the measurements were made in accordance with the procedures described in ASTM E90-99, they do not qualify as part of the standard. Since the results are representative of the test environment only, they are unofficial and intended for research and development guidelines rather than for commercial purposes. The transmission loss values at the additional frequencies were as follows:

Sound Transmission Loss (dB)

| Reference Test Number | Frequency (Hz) | | | | |
|--------------------------|----------------|----|----|----|----|
| | 31.5 | 40 | 50 | 63 | 80 |
| RAL™-TL01-208 | 19 | 23 | 11 | 10 | 21 |
| RAL™-TL01-209 | 16 | 23 | 17 | 16 | 24 |
| RAL™-TL01-210 | 15 | 23 | 17 | 18 | 30 |
| RAL™-TL01-211 | 16 | 23 | 22 | 28 | 36 |
| RAL™-TL01-212 | 14 | 23 | 26 | 32 | 38 |

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