

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: Kelly Klosure Systems
Fremont, NE

Sound Transmission Loss
RAL™-TL12-136

CONDUCTED: 26 June 2012

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ON: Wall Panel with 2.5 inch Rigid Polyisocyanurate Insulation

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-09 and E413-10, 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 (NVLAP Lab Code: 100227-0). A description of the measuring technique is available separately.

The source room temperature at the time of the test was $24\pm 1^{\circ}\text{C}$ ($76\pm 1^{\circ}\text{F}$) and $51\pm 1\%$ relative humidity. The receiving room temperature at the time of the test was $24\pm 1^{\circ}\text{C}$ ($76\pm 1^{\circ}\text{F}$) and $53\pm 1\%$ relative humidity. The source and receive reverberation room volumes were 178 m^3 ($6,298\text{ ft}^3$) and 177 m^3 ($6,255\text{ ft}^3$), respectively.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Wall Panel with 2.5 inch Rigid Polyisocyanurate Insulation. The overall dimensions of the specimen were nominally 2.44 m (96.00 in.) wide by 2.74 m (108.00 in.) high and 139.70 mm (5.50 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. A substantial filler wall was used in the remaining open area. Both the filler wall and test specimen were sealed on the periphery (both sides) with dense mastic.

The manufacturer's description of the specimen was as follows: 8' x 9' wall section consisting of (3) 3' x 8' Kelly Klosure Panels. L2x2x1/8 steel angle frame painted with red primer. 28 Ga. G-90 flat galvanized steel liner. 2.5" rigid polyisocyanurate insulation with foil facing. 29 Ga Galvalume exterior sheeting, 3/4" high rib profile. Steel frames bolted at panel joints, no sealant applied at overlapping joints. A full internal inspection was performed on the test specimen by Riverbank personnel, revealing an angle iron/metal frame and corrugated sheet metal facing. The weight of the specimen as measured was 115.4 kg (254.5 lbs.), an average of 17.2 kg/m^2 (3.5 lbs/ft^2). The transmission area used in the calculations was 6.7 m^2 (72 ft^2).

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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 TL test data is within the limits set by the ASTM Standard E90-09.

<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	12	0.70		800	23	0.18	5
125	14	0.39		1000	22	0.15	7
160	15	0.44		1250	26	0.13	4
200	17	0.70		1600	33	0.10	
250	19	0.40		2000	38	0.11	
315	20	0.30	2	2500	42	0.09	
400	21	0.33	4	3150	45	0.09	
500	21	0.25	5	4000	47	0.09	
630	22	0.18	5	5000	50	0.08	

STC=26

ABBREVIATION INDEX

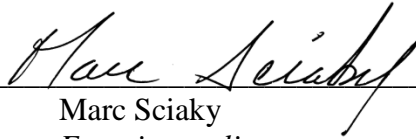
FREQ. = FREQUENCY, HERTZ, (cps)

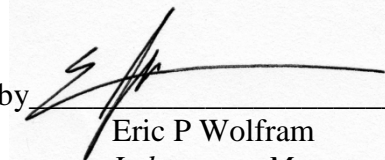
T.L. = TRANSMISSION LOSS, dB

C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT

DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 32)

STC = SOUND TRANSMISSION CLASS

Tested by 
Marc Sciaky
Experimentalist

Approved by 
Eric P Wolfram
Laboratory Manager

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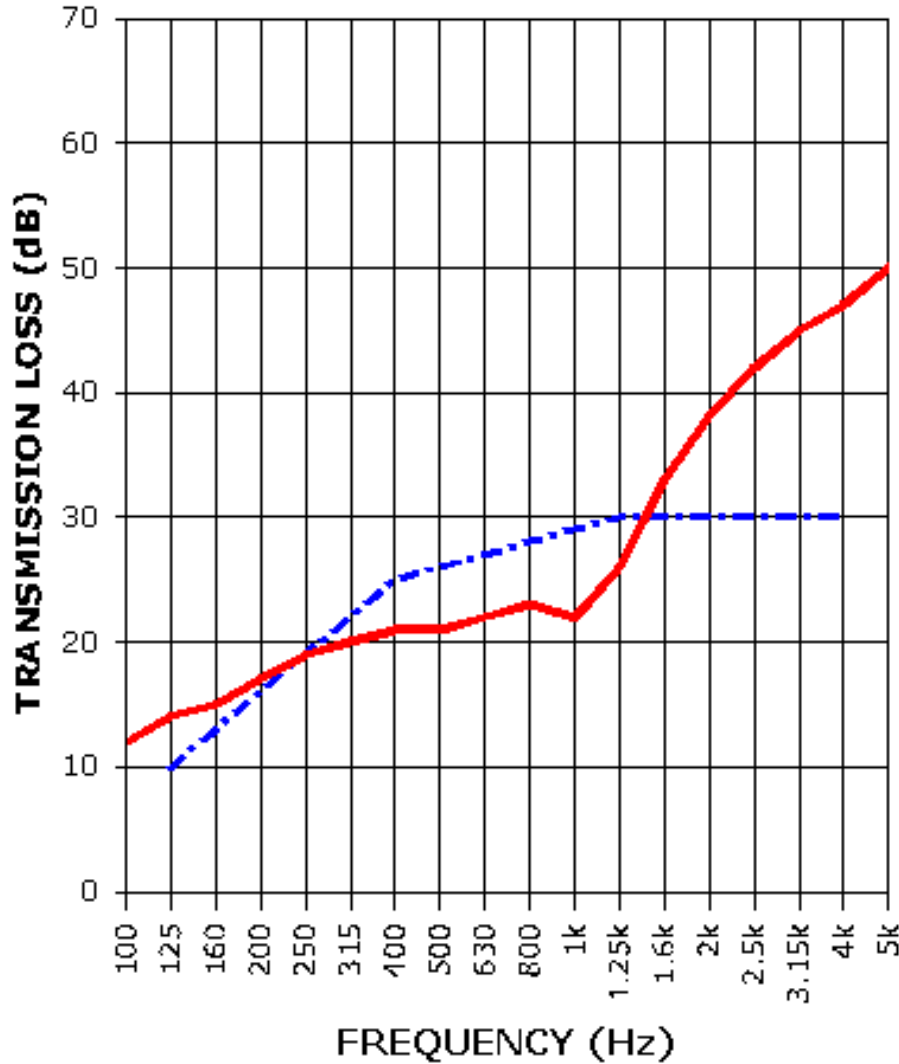
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**SOUND TRANSMISSION REPORT
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STC=26

OITC=21



TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR

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Appendix A to ASTM E90 Sound Transmission Loss Test Additional Frequency Data for Transmission Loss Testing

Product Description: Wall Panel with 2.5 inch Rigid Polyisocyanurate Insulation (See full report)

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 E90-04, 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:

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1/3 Octave Center Frequency (Hz)	Sound Transmission Loss (dB)
50	23
63	22
80	19
6300	54
8000	58
10000	61

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Appendix B to ASTM E90 Sound Transmission Loss Test

OITC Determination (Outdoor Indoor Transmission Class)

Product Description: Wall Panel with 2.5 inch Rigid Polyisocyanurate Insulation (See full report)

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 E90-09 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	19
100	102	12
125	101	14
160	98	15
200	97	17
250	95	19
315	94	20
400	93	21
500	93	21
630	91	22
800	90	23
1000	89	22
1250	89	26
1600	88	33
2000	88	38
2500	87	42
3150	85	45
4000	84	47

OITC=21

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