

RIVERBANK ACOUSTICAL LABORATORIES

1512 BATAVIA AVENUE
GENEVA, ILLINOIS 60134

OF
IIT RESEARCH INSTITUTE

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

REPORT

FOR: Composite Technologies Corporation

Sound Transmission Loss
Test RAL™-TL97-258

ON: A 444 Panel

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CONDUCTED: 29 September 1997

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-90 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. The microphone used was a Bruel & Kjaer serial number 951371

DESCRIPTION OF THE SPECIMEN

The test specimen was designated as a 444 panel. The overall dimensions of the specimen as measured were nominally 1.22 m (48 in.) wide by 2.44 m (96 in.) high and nominally 311 mm (12.25 in.) thick. The specimen was placed directly in the laboratory's 1.22 m (4 ft) by 2.44 m (8 ft) test opening and was sealed on the periphery (both sides) with a dense mastic. The manufacturer's description of the specimen was as follows: The sample was a sandwich panel comprised of 102 mm (4 in.) thick Dow Styrofoam® (extruded Polystyrene) insulation with two nominally 102 mm (4 in.) thick concrete layers. The insulation was in two 51 mm (2 in.) thick layers. The concrete was normal weight concrete. The concrete layers were connected with eighteen pultruded vinyl ester and glass fiber composite rods with nominal cross sectional dimensions of 5 mm (0.1875 in.) by 9 mm (0.375 in.). The rods were installed at 16" on center each way. The insulation was Type N per ASTM C-578 with an R-Value of 5.0/inch at 70°F. Two sandwich plugs were used to close holes required for handling. Each plug was similar in construction to the overall panel, but each plug had a single connector rod. A visual inspection verified the manufacturer's description of the specimen. The calculated weight of the specimen was 2,570 kg (5,666 lbs) an average of 857 kg/m² (177 lbs/ft²). The transmission area used in the calculations was 3.0 m² (32 ft²). The source and receiving room temperatures at the time of the test were 21°C (70°±3F) and 65±2% relative humidity.

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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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 are within the limits set by the ASTM Standard E90-90.

<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	44	0.37	0	800	62	0.29	0
125	40	0.34	0	1000	66	0.21	0
160	41	0.40	0	1250	67	0.19	0
200	42	0.40	2	1600	69	0.18	0
250	42	0.43	5	2000	71	0.13	0
315	42	0.39	8	2500	73	0.13	0
400	45	0.34	8	3150	74	0.11	0
500	52	0.38	2	4000	75	0.09	0
630	58	0.36	0	5000	74	0.11	0

STC = 54

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 and
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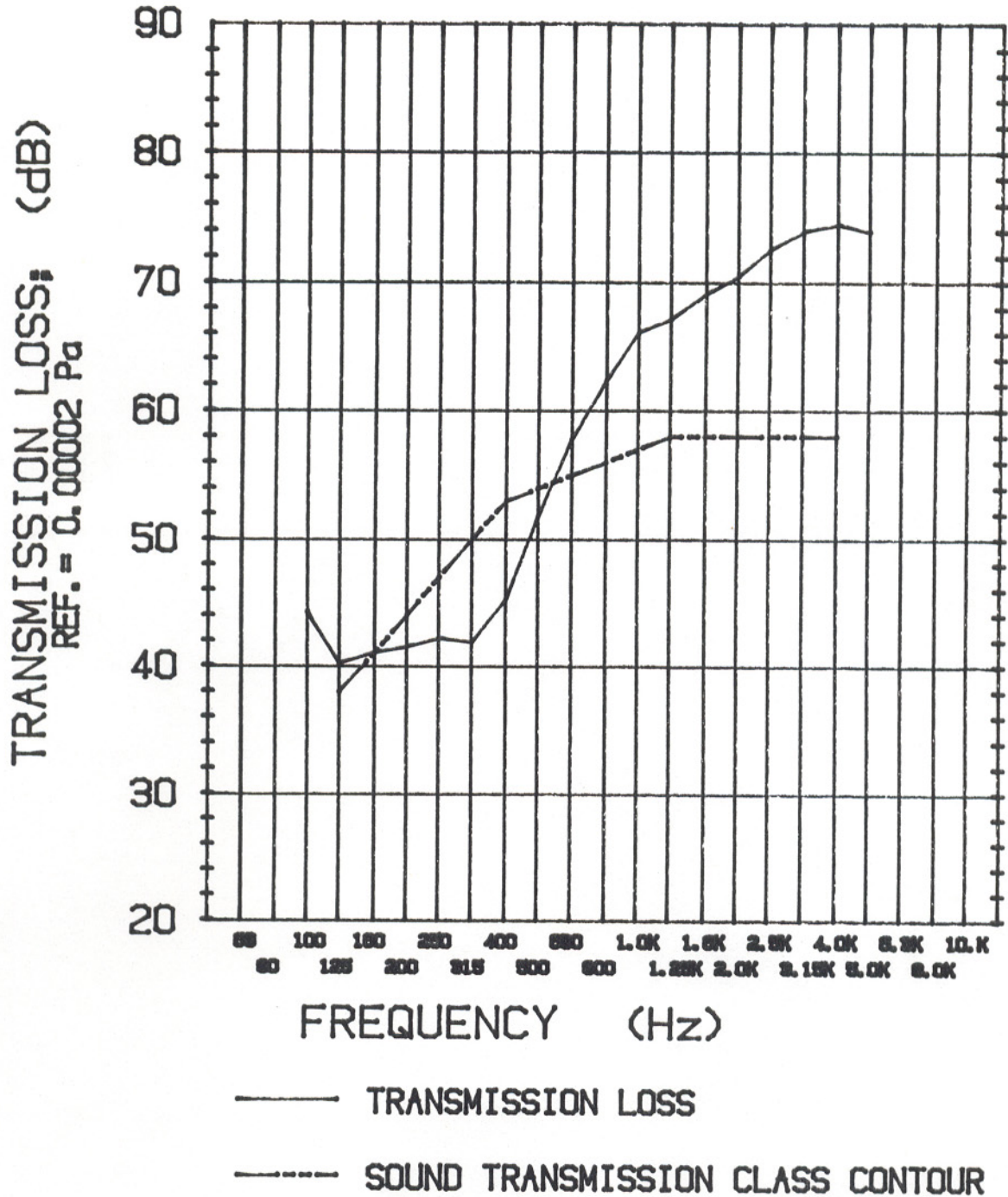
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ON: Extra Frequencies

CONDUCTED: 29 September 1997

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 E90-90, 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:

Frequency (Hz)	Transmission Loss (TL)
50	39
63	40
80	40



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