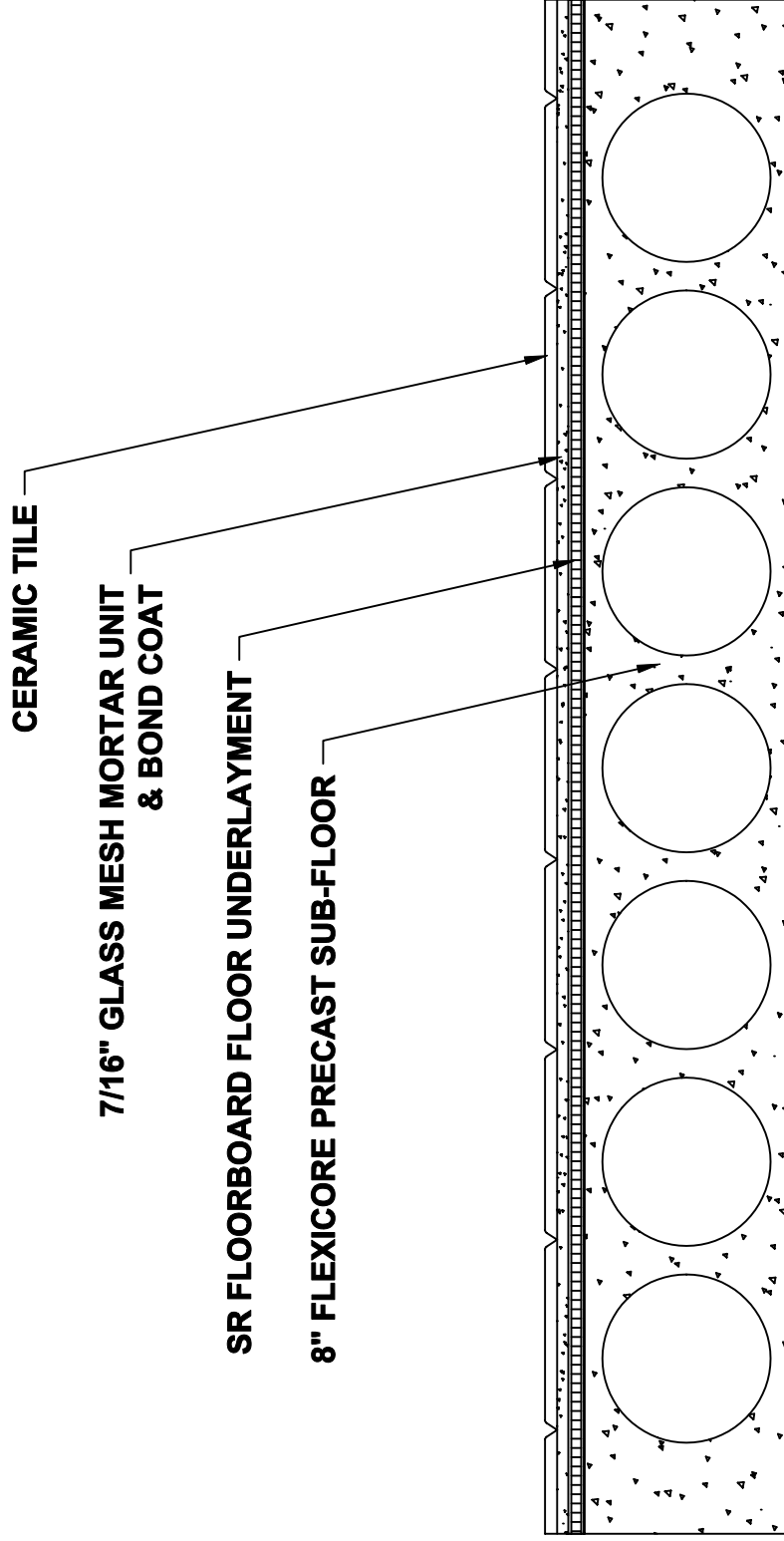


STC 59
IIC 59



TITLE



TEST B1

LAST DATE
REVISED
11-09-04

REVISED BY
JAE

DRAWING NO.
B1

RIVERBANK ACOUSTICAL LABORATORIES

1512 BATAVIA AVENUE
GENEVA, ILLINOIS 60134

OF
IIT RESEARCH INSTITUTE

312/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

REPORT

FOR: Ceramic Tile Institute

Sound Transmission Loss
Test RAL™-TL86-280

ON: A CTI Case #16A Floor/Ceiling
Assembly Without Hanging Ceiling

Page 1 of 5

CONDUCTED: 23 October 1986

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the American Society for Testing and Materials Designations E90-85 and E413-73, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Bureau of Standards under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure. A description of the measuring technique is available separately. The serial number of the measuring microphone was 951355.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as a CTI Case #16A Floor/Ceiling Assembly without hanging ceiling. The overall dimensions of the specimen as measured were 4.3 m (168 in.) wide by 6.1 m (240 in.) long and nominally 25.7 cm (10.13 in.) thick. The test specimen was constructed directly in the laboratory's 4.3 m (14 ft) by 6.1 m (20 ft) test opening and was sealed on the periphery (both sides) with a dense mastic. The source and receiving room temperatures at the time of the test were 20°C (68°F) and 60% relative humidity. The test specimen was allowed to cure for the minimum twenty-eight day period as designated by the standard for concrete and masonry type floors. The description of the specimen was as follows: A ceramic tile surface floor was set on cementitious backer units (Wonderboard®) with a dry-set bond coat composite that was placed over a layer of underlayment material. The subfloor consisted of a single layer of precast concrete slabs. A detailed itemized description follows:

Tile

The surface consisted of a single layer of Summitville Quarry tile, Florentine pattern. Each tile measured 17.3 cm (6.82 in.) round to round, 18.9 cm (7.44 in.) flat to flat, and 1.19 cm (0.468 in.) thick. The area of one tile represented 0.019 m² (28.35 in.²), and the total area of the tiles represented 22.7 m² (244 ft²) with 3.34 m² (36 ft²) attributed to the grout. The 1240 tiles weighed 633 kg (1395 lbs).

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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REPORT

Ceramic Tile Institute

RAL™-TL86-280

23 October 1986

Page 2 of 5

DESCRIPTION OF THE SPECIMEN (con't)

Cementitious Backer Units and Bond Coat

The backer units consisted of a layer of 11.1 mm (0.4375 in.) thick Wonderboard®. Each unit was taped with a 5.08 cm (2 in.) wide fiberglass mesh on both sides, and the edges were bonded with the bond coat. The bond coat consisted of FT-NON-SAG grout mixture and Portland cement. The Wonderboard® and bond coat weighed 533 kg (1176 lbs).

Underlayment

The underlayment consisted of a single layer of 15.9 mm (0.625 in.) thick molded fiber glass honeycomb composite "Kinetics SR Floorboard" (Peabody Noise Control, Inc.). Essentially the composite consisted of a 9.53 mm (0.375 in.) paper honeycomb sandwiched between two layers of nominal 2.79 mm (0.110 in.) thick fiberglass. The 26 m² (280 ft²) of underlayment weighed 38.1 kg (84 lbs).

Feltpaper

The feltpaper was designated by the dealer as 6.8 kg (15 lb) feltpaper, a roofing paper that weighed 19.1 kg (42 lbs).

Isolation

The periphery of the surface floor assembly was lined with the underlayment material in order to provide floor/wall isolation.

Subfloor Assembly

The subfloor consisted of ten 20.3 cm (8 in.) thick, 60.7 cm (23.9 in.) wide Flexicore® Model #824A-D-22 precast concrete slabs cut to nominally 4.24 m (167 in.). The periphery and intermediate joints (top and bottom) of the precast concrete slabs were sealed with a dense mastic. The Flexicore® slabs were the ceiling surface for the receiving room. The ten Flexicore® slabs weighed 7076 kg (15600 lbs).

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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Ceramic Tile Institute

RALTM-TL86-280

23 October 1986

Page 3 of 5

DESCRIPTION OF THE SPECIMEN (con't)

Weight/Area

The weight of the specimen as determined was 8299.5 kg (18297 lbs) an average of 319 kg/m² (65.3 lbs/ft²). The transmission area used in the calculations was 26 m² (280 ft²).

TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. An explanation of the sound transmission class rating, 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 E90-85.

<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	37	0.16	0	800	64	0.25	0
125	44	0.24	0	1000	66	0.24	0
160	40	0.22	6	1250	67	0.25	0
200	45	0.27	4	1600	62	0.24	1
250	47	0.30	5	2000	60	0.18	3
315	50	0.29	5	2500	67	0.17	0
400	54	0.31	4	3150	73	0.13	0
500	58	0.34	1	4000	77	0.19	0
630	61	0.32	0	5000	81	0.07	0

STC = 59

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REPORT

Ceramic Tile Institute

RAL™-TL86-280

23 October 1986

Page 4 of 5

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

Reviewed by

Diane C. Haase

Diane C. Haase
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Tested by

Peter E. Straus

Peter E. Straus
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Submitted by

John W. Kopec

John W. Kopec
Supervisor, Riverbank
Acoustical Laboratories

Revised 2/11/87

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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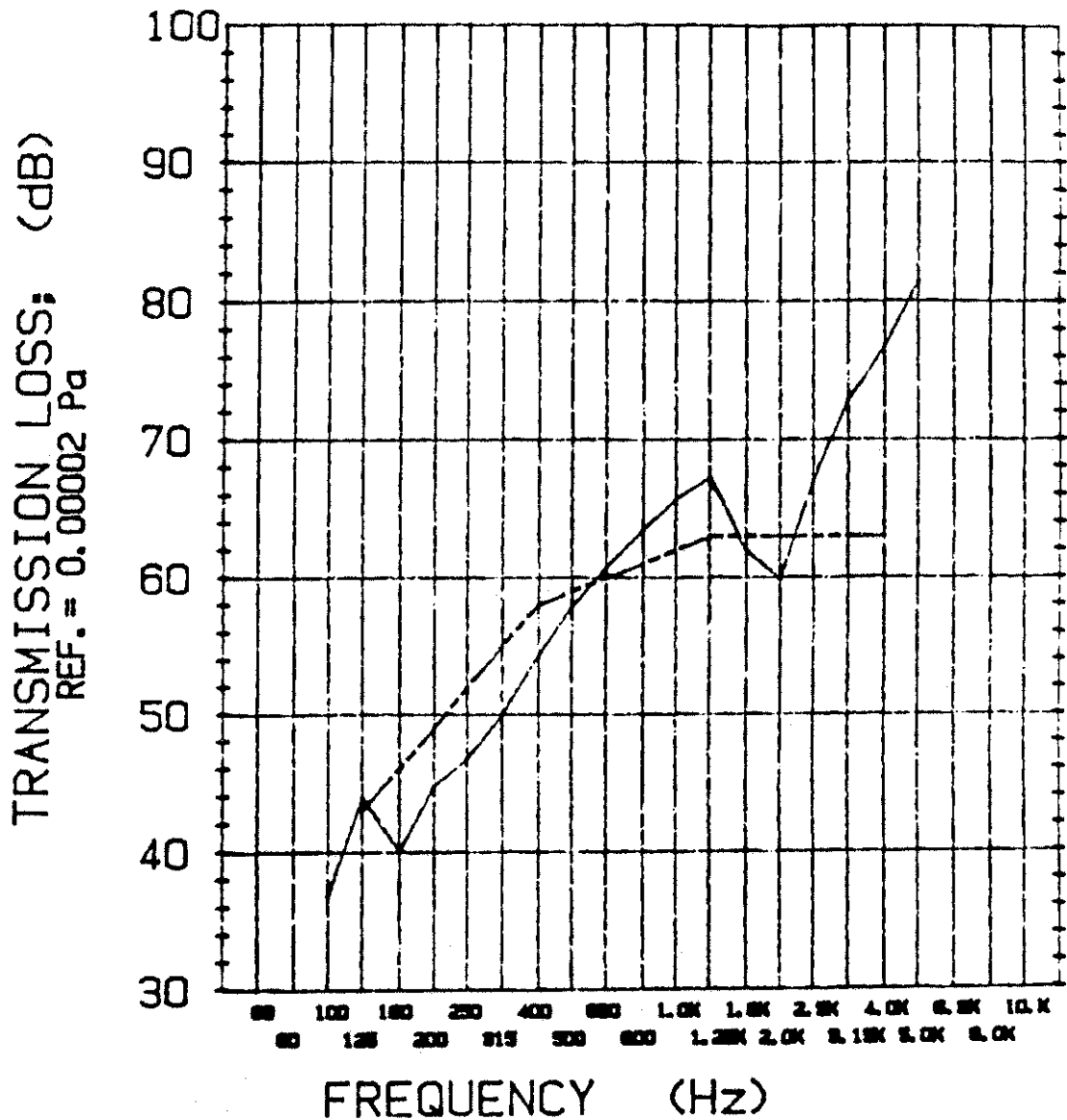
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REPORT

TRANSMISSION LOSS REPORT

RAL-TL86-280 Page 5 of 5



— TRANSMISSION LOSS

- - - SOUND TRANSMISSION CLASS CONTOUR

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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REPORT

FOR: Ceramic Tile Institute

Impact Sound Transmission
Test RAL[™]-IN86-26

ON: A CTI Case #16A Floor/Ceiling
Assembly Without Hanging Ceiling

Page 1 of 5

CONDUCTED: 23 October 1986

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the American Society for Testing and Materials Designations E492-77, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Bureau of Standards under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure. A description of the measuring technique is available separately. The serial number of the measuring microphone was 951355.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as a CTI Case #16A Floor/Ceiling Assembly without hanging ceiling. The overall dimensions of the specimen as measured were 4.3 m (168 in.) wide by 6.1 m (240 in.) long and nominally 25.7 cm (10.13 in.) thick. The test specimen was constructed directly in the laboratory's 4.3 m (14 ft) by 6.1 m (20 ft) test opening and was sealed on the periphery (both sides) with a dense mastic. The room temperature at the time of the test was 20°C (68°F) and 60% relative humidity. The test specimen was allowed to cure for the minimum twenty-eight day period as designated by the standard for concrete and masonry type floors. The description of the specimen was as follows: A ceramic tile surface floor was set on cementitious backer units (Wonderboard®) with a dry-set bond coat composite that was placed over a layer of underlayment material. The subfloor consisted of a single layer of precast concrete slabs. A detailed itemized description follows:

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REPORT

Ceramic Tile Institute

RALTM-IN86-26

23 October 1986

Page 2 of 5

DESCRIPTION OF THE SPECIMEN (con't)

Cementitious Backer Units and Bond Coat

The backer units consisted of a layer of 11.1 mm (0.4375 in.) thick Wonderboard[®]. Each unit was taped with a 5.08 cm (2 in.) wide fiberglass mesh on both sides, and the edges were bonded with the bond coat. The bond coat consisted of FT-NON-SAG grout mixture and Portland cement. The Wonderboard[®] and bond coat weighed 533 kg (1176 lbs).

Underlayment

The underlayment consisted of a single layer of 15.9 mm (0.625 in.) thick molded fiber glass honeycomb composite "Kinetics SR Floorboard" (Peabody Noise Control, Inc.). Essentially the composite consisted of a 9.53 mm (0.375 in.) paper honeycomb sandwiched between two layers of nominal 2.79 mm (0.110 in.) thick fiberglass. The 26 m² (280 ft²) of underlayment weighed 38.1 kg (84 lbs).

Feltpaper

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Isolation

The periphery of the surface floor assembly was lined with the underlayment material in order to provide floor/wall isolation.

Subfloor Assembly

The subfloor consisted of ten 20.3 cm (8 in.) thick, 60.7 cm (23.9 in.) wide Flexicore[®] Model #824A-D-22 precast concrete slabs cut to nominally 4.24 m (167 in.). The periphery and intermediate joints (top and bottom) of the precast concrete slabs were sealed with a dense mastic. The Flexicore[®] slabs were the ceiling surface for the receiving room. The ten Flexicore[®] slabs weighed 7076 kg (15600 lbs).

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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Ceramic Tile Institute

RAL-IN86-26

23 October 1986

Page 3 of 5

DESCRIPTION OF THE SPECIMEN (con't)

Weight/Area

The weight of the specimen as determined was 8299.5 kg (18297 lbs) an average of 319 kg/m² (65.3 lbs/ft²). The total area used in the impact sound transmission test was 26 m² (280 ft²).

TEST RESULTS

Sound pressure levels at 1/3 octave intervals, normalized to 10 square meters, are given in tabular form. The impact insulation class, IIC, was computed in accordance with ASTM E989-84 and ASTM E492-77.

<u>FREQ.</u>	<u>ISL.</u>	<u>C.L.</u>	<u>DEV.</u>	<u>FREQ.</u>	<u>ISL.</u>	<u>C.L.</u>	<u>DEV.</u>
100	60	1.97	7	630	47	1.96	0
125	54	1.28	1	800	45	1.68	0
160	58	1.37	5	1000	45	1.64	0
200	54	1.22	1	1250	43	1.89	0
250	53	1.32	0	1600	43	2.10	1
315	53	1.32	0	2000	44	1.90	5
400	51	1.43	0	2500	42	2.12	6
500	49	1.75	0	3150	38	1.93	5

IIC = 59

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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Ceramic Tile Institute

RAL™-IN86-26

23 October 1986

Page 4 of 5

ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
ISL. = IMPACT SOUND LEVEL, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEV. = DEVIATION
IIC = IMPACT INSULATION CLASS

Reviewed by Diane C. Haase
Diane C. Haase
Senior Technician

Tested by Peter E. Straus
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Submitted by John W. Kopec
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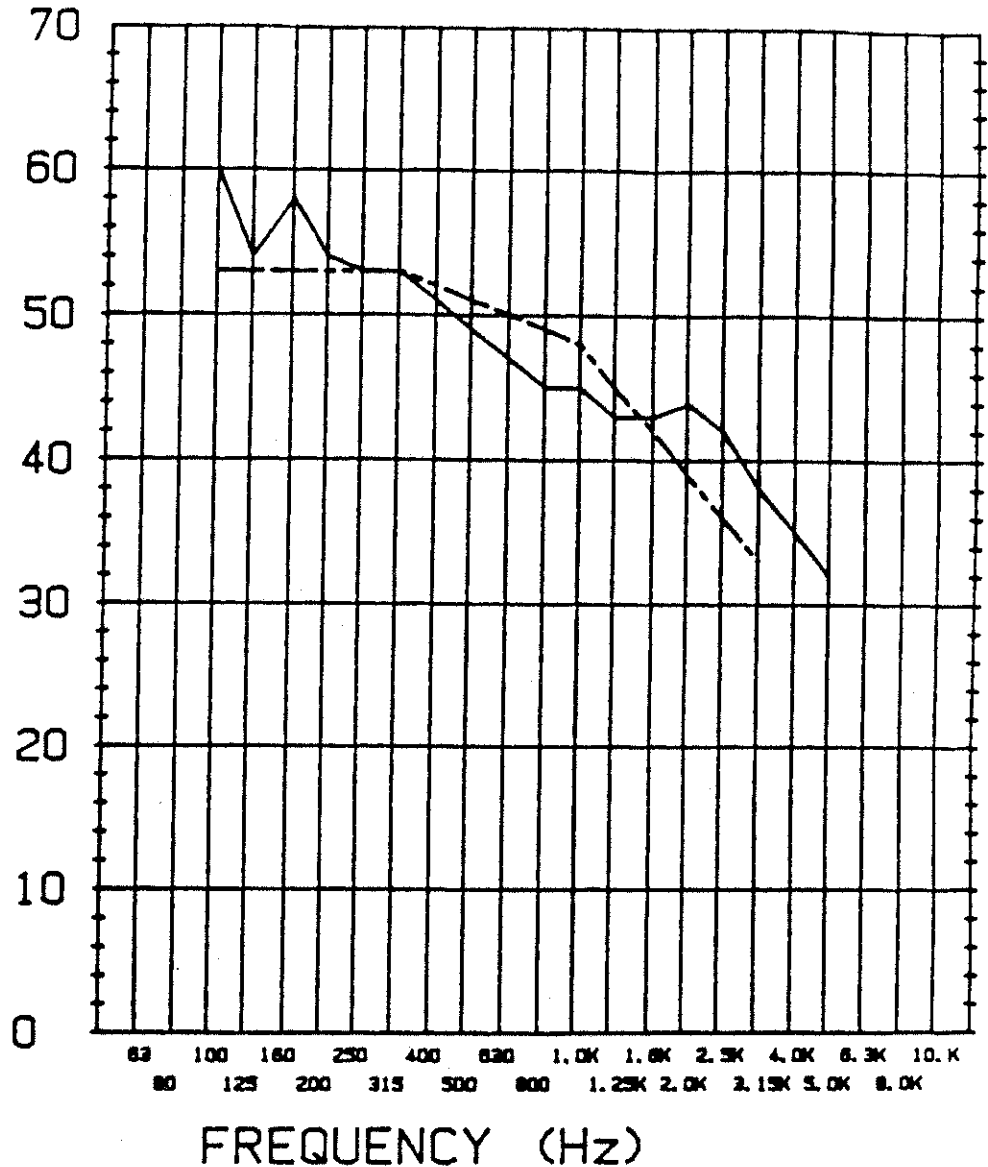
REPORT

IMPACT INSULATION REPORT

RAL IN86-26 Page 5 of 5

IMPACT SOUND PRESSURE LEVEL: (dB)

REF. = 0.002 DYNE/ CM²



—— IMPACT SOUND PRESSURE

----- IMPACT INSULATION CLASS

IIC = 59

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