

**RIVERBANK ACOUSTICAL LABORATORIES**  
OF  
NIST RESEARCH INSTITUTE

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**

Impact Sound Transmission  
Test RAL™-IN94-19

FOR: Badger Cork  
ON: Badger Cork 6 mm AcoustiCORK® Underlayment  
With Ceramic Tile On A Two-by-Ten Wood Joist  
Floor System With 3" Insulation, Resilient  
Channel, And 5/8" Gypsum Ceiling

Page 1 of 4

CONDUCTED: 17 October 1994

Revision 17 February 1998

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E492-90 and E989-89, 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 serial number of the measuring microphone was 1330658.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the client as a Badger Cork 6 mm AcoustiCORK underlayment with ceramic tile on a two-by-ten wood joist floor system with 3" insulation, resilient channel and 5/8" gypsum ceiling. The overall dimensions of the specimen were nominally 4.27 m (168 in.) wide by 6.10 m (240 in.) long and 305 mm (12 in.) thick. The specimen was constructed directly in the laboratory's 4.27 m (14 ft) by 6.10 m (20 ft) test opening and was sealed on the periphery (both sides) with a dense mastic. The description of the specimen was as follows: From the top down, the floor consisted of standard grade 152 mm (6 in.) by 152 mm (6 in.) by 6.4 mm (0.25 in.) thick glazed ceramic tile by United States Ceramic Tile Co. grouted with Hydroment Ceramic Tile Grout. The tile was set to 13 mm (0.5 in.) thick Glascrete Inc. glass mesh mortar units with latex modified thin set mortar. The glass mesh mortar units were set on Badger Cork 6 mm (0.236 in.) thick, AcoustiCORK underlayment. The 6 mm AcoustiCORK was laid directly on the 15 mm (0.6 in.) thick plywood sub-floor.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN  
ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY  
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES  
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL OR ENDORSEMENT BY NIST.



**RIVERBANK ACOUSTICAL LABORATORIES**  
OF  
IIT RESEARCH INSTITUTE

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**

RAL™-IN94-19

Badger Cork

Page 2 of 4

17 October 1994

Revision 17 February 1998

DESCRIPTION OF THE SPECIMEN (con't)

The plywood sub-floor was nailed to 4.18 m (164.5 in.) long, two-by-ten wood floor joists. The floor joists were spaced 406 mm (16 in.) on center and were toe nailed to a two-by-ten box sill on each end. The floor joists were braced with one-by-three bridging at the center of the joists and two-by-ten blocks at the ends. The wood joist cavities contained a 76 mm (3 in.) thick layer of USG Thermafiber SAFB. The ceiling consisted of eight runs of RC-1 resilient channels spaced on 610 mm (24 in.) centers and attached directly to the joists with 32 mm (1.23 in.) Type W screws. A single layer of 16 mm (0.625 in.) thick USG Type SCX drywall was attached directly to the resilient channels with 25 mm (1.0 in.) long drywall screws spaced on 305 mm (12 in.) centers. The drywall joints were taped and sealed with USG joint compound. Construction of systems were coordinated and supervised by Tile Institute of America at 1325 Valley High Avenue, Thousand Oaks, California, 91362-1905, (805) 371-8453 and the technical consultant was Gerald M. Halweg, CTC, CSI, TTA. A visual inspection verified the description of the specimen. The weight of the entire specimen as determined was 1,805 kg (3,979 lbs) an average of 69.4 kg/m<sup>2</sup> (14.2 lbs/ft<sup>2</sup>). The source and receiving room temperatures at the time of the test were 19°C (66±2°F) and 67±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.  
ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY  
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES  
OR IMPLIES PRODUCT CERTIFICATION APPROVAL OR ENDORSEMENT BY NIST.



**RIVERBANK ACOUSTICAL LABORATORIES**  
OF  
IIT RESEARCH INSTITUTE

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**

RAL-IN94-19

Badger Cork

Page 3 of 4

17 October 1994

Revision 17 February 1998

TEST RESULTS

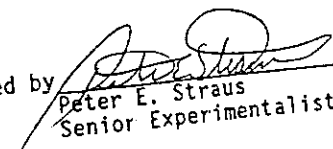
Sound pressure levels at 1/3 octave intervals, normalized to 10 square meters, are given in tabular form. The impact insulation class, IIC, was computed in accordance with ASTM E989-89 and ASTM E492-90.

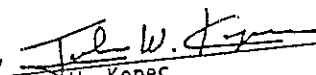
FREQ.	ISL	C.L.	DEV.	FREQ.	ISL	C.L.	DEV.
100	70	0.57	8	630	52	0.28	0
125	61	0.53	0	800	49	0.27	0
160	62	0.28	0	1000	51	0.19	0
200	60	0.26	0	1250	50	0.19	0
250	60	0.36	0	1600	48	0.16	0
315	57	0.34	0	2000	48	0.17	0
400	56	0.33	0	2500	49	0.17	4
500	54	0.34	0	3150	43	0.21	1

IIC = 50

ABBREVIATION INDEX

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

Submitted by   
Peter E. Straus  
Senior Experimentalist

Reviewed by   
John W. Kopec  
Laboratory Manager

Revision 9 June 1995  
Revision 17 February 1998

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN ACCREDITED BY DEPARTMENT OF COMMERCE. NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS. THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.



**RIVERBANK ACOUSTICAL LABORATORIES**  
OF  
IIT RESEARCH INSTITUTE

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**

Sound Transmission Loss  
Test RAL™-TL94-274

FOR: Badger Cork

ON: Badger Cork 6 mm AcoustiCORK® Underlayment  
With Ceramic Tile On A Two-by-Ten Wood Joist  
Floor System With 3" Insulation, Resilient  
Channel, And 5/8" Gypsum Ceiling

Page 1 of 4

CONDUCTED: 17 October 1994

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 1330658.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the client as a Badger Cork 6 mm AcoustiCORK underlayment with ceramic tile on a two-by-ten wood joist floor system with 3" insulation, resilient channel and 5/8" gypsum ceiling. The overall dimensions of the specimen were nominally 4.27 m (168 in.) wide by 6.10 m (240 in.) long and 305 mm (12 in.) thick. The specimen was constructed directly in the laboratory's 4.27 m (14 ft) by 6.10 m (20 ft) test opening and was sealed on the periphery (both sides) with a dense mastic. The description of the specimen was as follows: From the top down, the floor consisted of standard grade 152 mm (6 in.) by 152 mm (6 in.) by 6.4 mm (0.25 in.) thick glazed ceramic tile by United States Ceramic Tile Co. grouted with Hydroment Ceramic Tile Grout. The tile was set to 13 mm (0.5 in.) thick Glascrete Inc. glass mesh mortar units with latex modified thin set mortar. The glass mesh mortar units were set on Badger Cork 6 mm (0.236 in.) thick, AcoustiCORK underlayment. The 6 mm AcoustiCORK was laid directly on the 15 mm (0.6 in.) thick plywood sub-floor.

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

**NVLAP**

ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY  
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES  
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL OR ENDORSEMENT BY NIST.

**RIVERBANK ACOUSTICAL LABORATORIES**  
OF  
IIT RESEARCH INSTITUTE

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**

RAL™-TL94-274

Badger Cork

Page 2 of 4

17 October 1994

Revision 17 February 1998

DESCRIPTION OF THE SPECIMEN (con't)

The plywood sub-floor was nailed to 4.18 m (164.5 in.) long, two-by-ten wood floor joists. The floor joists were spaced 406 mm (16 in.) on center and were toe nailed to a two-by-ten box sill on each end. The floor joists were braced with one-by-three bridging at the center of the joists and two-by-ten blocks at the ends. The wood joist cavities contained a 76 mm (3 in.) thick layer of USG Thermafiber SAFB. The ceiling consisted of eight runs of RC-1 resilient channels spaced on 610 mm (24 in.) centers and attached directly to the joists with 32 mm (1.23 in.) Type W screws. A single layer of 16 mm (0.625 in.) thick USG Type SCX drywall was attached directly to the resilient channels with 25 mm (1.0 in.) long drywall screws spaced on 305 mm (12 in.) centers. The drywall joints were taped and sealed with USG joint compound. Construction of systems were coordinated and supervised by Tile Institute of America at 1325 Valley High Avenue, Thousand Oaks, California, 91362-1905, (805) 371-8453 and the technical consultant was Gerald M. Halweg, CTC, CSI, TTA. A visual inspection verified the description of the specimen. The weight of the entire specimen as determined was 1,805 kg (3,979 lbs) an average of 69.4 kg/m<sup>2</sup> (14.2 lbs/ft<sup>2</sup>). The transmission area used in the calculations was 26 m<sup>2</sup> (280 ft<sup>2</sup>). The source and receiving room temperatures at the time of the test were 18°C (64±2°F) and 66±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



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY  
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES  
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

**RIVERBANK ACOUSTICAL LABORATORIES**

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

OF  
IIT RESEARCH INSTITUTE

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**

RAL™-TL94-274

Badger Cork

Page 3 of 4

17 October 1994

Revision 17 February 1998

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.

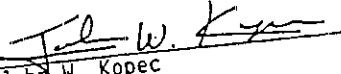
FREQ.	T.L.	C.L.	DEF.	FREQ.	T.L.	C.L.	DEF.
100	35	2.33	0	800	70	0.26	0
125	45	2.73	3	1000	73	0.26	0
160	48	0.67	3	1250	75	0.22	0
200	51	0.27	3	1600	76	0.23	0
250	51	0.11	6	2000	79	0.20	0
315	52	0.22	8	2500	79	0.15	0
400	58	0.32	5	3150	85	0.13	0
500	62	0.40	2	4000	89	0.12	0
630	66	0.26	0	5000	91	0.12	0

STC = 64

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

Submitted by   
Peter E. Straus  
Senior Experimentalist

Reviewed by   
John W. Kopec  
Laboratory Manager

Revision 9 June 1995  
Revision 17 February 1998

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS. THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES OR IMPLIES PRODUCT CERTIFICATION APPROVAL OR ENDORSEMENT BY NIST.

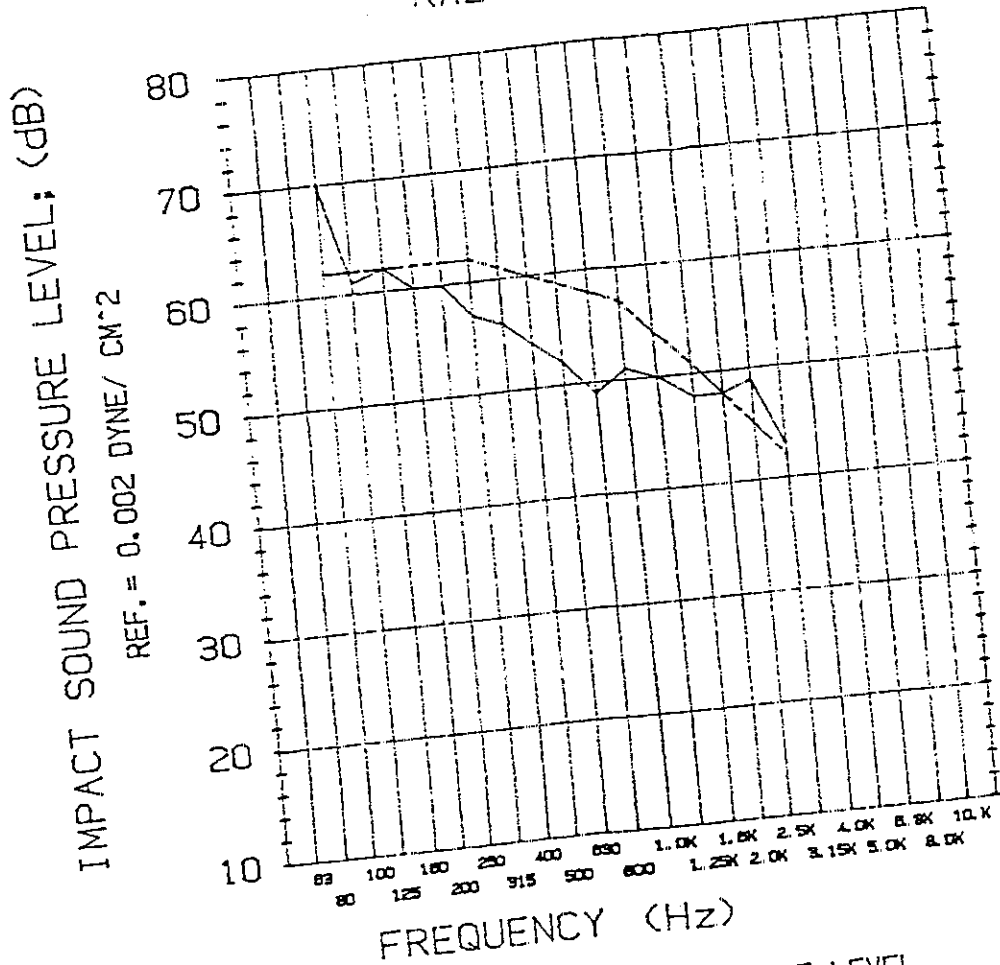


**RIVERBANK ACOUSTICAL LABORATORIES**  
OF  
IIT RESEARCH INSTITUTE

1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**  
**IMPACT INSULATION REPORT**  
RAL IN94-19 PAGE 4 OF 4



— IMPACT SOUND PRESSURE LEVEL  
 - - - IMPACT INSULATION CLASS CONTOUR

IIC = 50

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.  
 ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY  
 ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
 THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES  
 OR IMPLIES PRODUCT CERTIFICATION, APPROVAL OR ENDORSEMENT BY NIST.



**RIVERBANK ACOUSTICAL LABORATORIES**

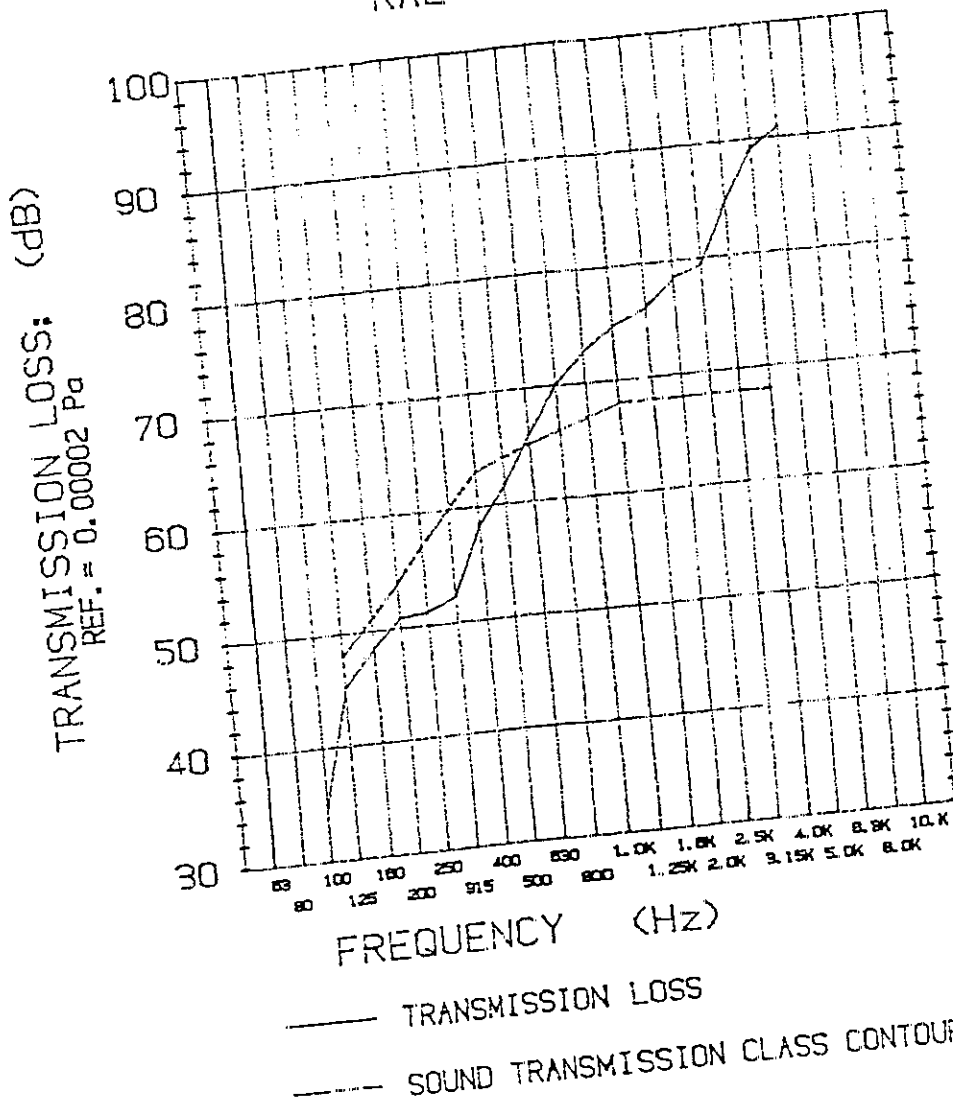
1512 BATAVIA AVENUE  
GENEVA, ILLINOIS 60134

OF  
IIT RESEARCH INSTITUTE

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

**REPORT**  
**TRANSMISSION LOSS REPORT**  
RAL-TL94-274

PAGE 4 OF 4



THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM, FOR SELECTED TEST METHODS FOR ACOUSTICS. THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

