

# RIVERBANK ACOUSTICAL LABORATORIES

12 S. BATAVIA AVENUE  
EVA, ILLINOIS 60134

OF  
IIT RESEARCH INSTITUTE

630/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

## REPORT

FOR: Auralex Acoustics

Sound Absorption Test  
RAL™-A01-249

ON: T'Fusor Diffusor

Page 1 of 4

CONDUCTED: 5 November 2001

### TEST METHOD

The test method conformed explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-90a and E795-00. 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 manufacturer as T'Fusor Diffusor. The overall dimensions of the specimen as measured were 2.41 m (95 in.) wide by 2.41 m (95 in.) long and 149 mm (5.875 in.) thick. The specimen consisted of sixteen (16) pieces. Each piece was 603 mm (23.75 in.) wide by 603 mm (23.75 in.) long and 149 mm (5.875 in.) thick. Each piece was a premolded plastic panel with a measured wall thickness of 1.5 mm (0.06 in.) and consisted of a pan type contour with a multi ribbed face of various heights and orientation. The specimen was tested in the laboratory's 292 m<sup>3</sup> (10,311 ft<sup>3</sup>) test chamber.

The weight of the entire specimen as measured was 12.5 kg (27.5 lbs), an average of 2.1 kg/m<sup>2</sup> (0.44 lbs/ft<sup>2</sup>). The area used in the calculations was 5.8 m<sup>2</sup> (62.7 ft<sup>2</sup>). The room temperature at the time of the test was 21°C (70°F) and 61±1% relative humidity.

### MOUNTING A

The test specimen was laid directly against the test surface. The perimeter was sealed using metal framing.

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

NVLAP

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ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES  
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## REPORT

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### TEST RESULTS

1/3 Octave Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins	% Of Uncertainty With 95% Confidence Limit With Specimen
100	0.32	20.25	3.72
** 125	0.36	22.63	2.44
160	0.58	36.42	2.72
200	0.60	37.86	1.97
** 250	0.39	24.28	1.62
315	0.14	8.63	1.26
400	0.27	17.02	1.03
** 500	0.23	14.26	0.87
630	0.18	11.05	0.69
800	0.18	11.31	0.62
** 1000	0.10	6.11	0.55
1250	0.08	5.28	0.51
1600	0.09	5.33	0.46
** 2000	0.09	5.71	0.55
2500	0.09	5.47	0.45
3150	0.07	4.48	0.43
** 4000	0.07	4.10	0.40
5000	0.06	3.97	0.44

NRC= 0.20

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NVLAQ

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5 November 2001

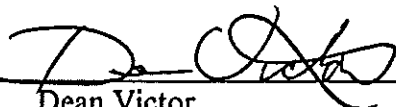
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### TEST RESULTS (Continued)

The percentage of uncertainty for the required 95% confidence limits indicated above must fall within the prescribed limits designated in par. 13.2 of ASTM C423-90a. It states that for the absorption of the reverberation room containing the specimen the testing laboratory shall obtain data with less than 4% uncertainty at 125 (hertz) and 2% uncertainty at 250, 500, 1000, 2000, and 4000 (hertz). The method of calculation is described in ASTM STP 15D and outlined in section 13 of the standard.

The noise reduction coefficient (NRC) is the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Tested by



Dean Victor  
Senior Experimentalist

Approved by



David L. Moyer  
Laboratory Manager

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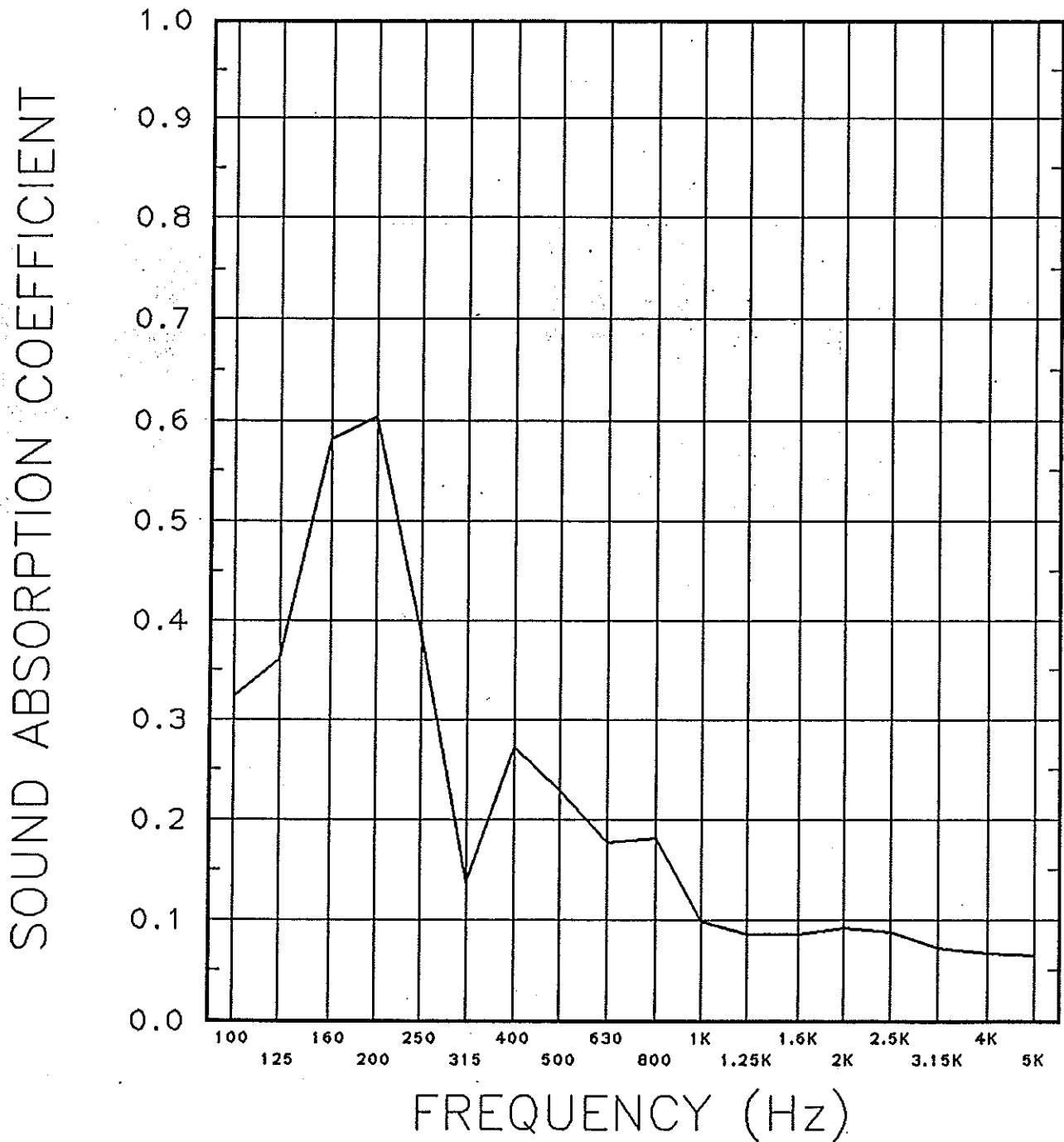
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## REPORT

### SOUND ABSORPTION REPORT

RAL - A01-249

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NRC = 0.20

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## REPORT

FOR: Auralex Acoustics

Sound Absorption Test

ON: T'Fusor Diffusor

RAL™-A01-250

APR GAP

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CONDUCTED: 6 November 2001

### TEST METHOD

The test method conformed explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-90a and E795-00. 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 manufacturer as T'Fusor Diffusor. The overall dimensions of the specimen as measured were 2.74 m (108 in.) wide by 2.41 m (95 in.) long and 149 mm (5.875 in.) thick. The specimen consisted of twenty (20) pieces. Sixteen pieces were 603 mm (23.75 in.) wide by 603 mm (23.75 in.) long and four pieces were 603 mm (23.75 in.) wide by 330 mm (13 in.) long. Each piece was a premolded plastic panel with a measured wall thickness of 1.5 mm (0.06 in.) and consisted of a pan type contour with a multi ribbed face of various heights and orientation. The specimen was tested in the laboratory's 292 m<sup>3</sup> (10,311 ft<sup>3</sup>) test chamber.

The weight of the entire specimen as measured was 14.1 kg (31 lbs), an average of 2.1 kg/m<sup>2</sup> (0.44 lbs/ft<sup>2</sup>). The area used in the calculations was 6.6 m<sup>2</sup> (71.3 ft<sup>2</sup>). The room temperature at the time of the test was 22±1°C (71±1°F) and 59±2% relative humidity.

### MOUNTING E-530

The test specimen was mounted with an airspace behind it. The number designates the distance in mm from the exposed face of the test specimen to the test surface.

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100	0.42	30.24	2.99
** 125	0.45	32.17	2.69
160	0.40	28.54	2.44
200	0.30	21.39	1.80
** 250	0.31	22.15	1.56
315	0.25	17.85	1.12
400	0.25	17.54	1.08
** 500	0.23	16.63	0.75
630	0.22	15.47	0.83
800	0.21	15.14	0.58
** 1000	0.16	11.71	0.68
1250	0.14	10.30	0.59
1600	0.14	10.03	0.52
** 2000	0.15	10.43	0.50
2500	0.16	11.18	0.42
3150	0.18	12.53	0.45
** 4000	0.21	15.30	0.44
5000	0.20	14.12	0.40

NRC= 0.20

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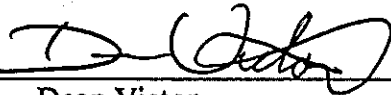
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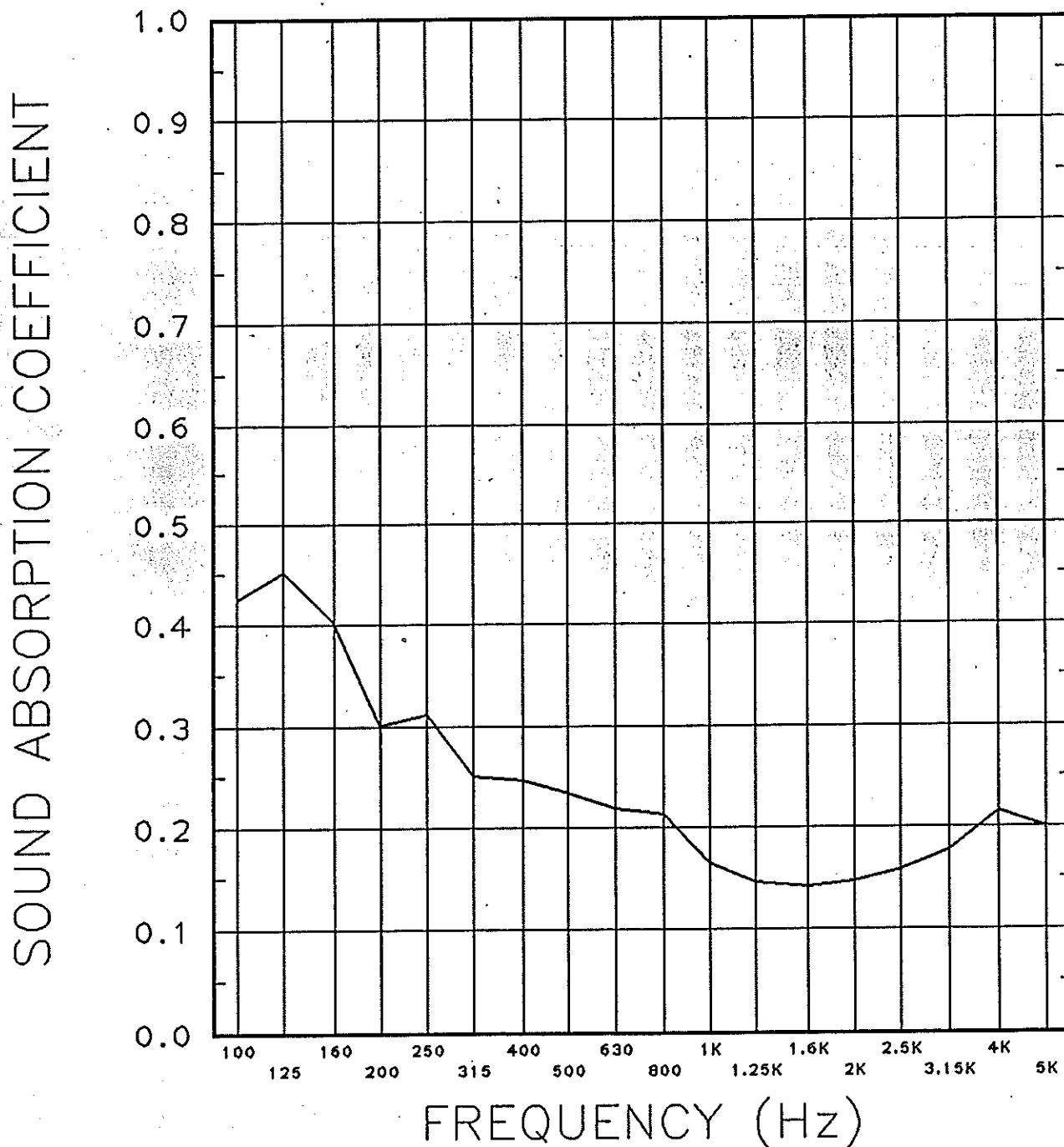
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### SOUND ABSORPTION REPORT

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