RIVERBANK ACOUSTICAL LABORATORIES

1512 S BATAVIA AVENUE
GENEVA, IL 60134

630-232-0104

Test Report

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Frasch**
Grand Prairie, TX

Sound Absorption
RAL™-A24-014

CONDUCTED: 2024-01-11

ON: Fazr Ceiling Channel (Filled)

TEST METHODOLOGY

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2017 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM C423-23: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-23: "Standard Practices for Mounting Test Specimens During Sound Absorption Tests." A description of the measurement procedure and room specifications are available upon request. The results presented in this report apply to the sample as received from the test sponsor.

INFORMATION PROVIDED BY SPONSOR

The test specimen was designated by the sponsor as Fazr Ceiling Channel (Filled). The following nominal product information was provided by the sponsor prior to testing. The accuracy of such sponsor-provided information can affect the validity of the test results.

Product Under Test

Product Name:	Fazr Ceiling Channel (Filled)
Manufacturer:	Frasch

SPECIMEN MEASUREMENTS & TEST CONDITIONS

Through a full external visual inspection performed on the test specimen, Riverbank personnel verified the following information:

Carriers

Dimensions:	3 pieces @ 51 mm (2 in.) by 2740 mm (107.875 in.) each
Depth:	46 mm (1.8125 in.)
Overall Weight:	2.15 kg (4.75 lbs)
Installation:	Carriers installed in E-mount frame prior to installation of channels

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SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Test Specimen

Material:	PET felt channels, metal angles
Geometry:	Channels with hollow trapezoidal cross sections Blue channels have the shorter of the two parallel sides removed Orange channels have the longer of the two parallel sides removed
Dimensions:	14 blue channels @ 149 mm (5.875 in.) wide by 2438 mm (96 in.) long 13 orange channels @ 51 mm (2 in.) wide by 2438 mm (96 in.) long
Depth:	14 blue channels @ 22 mm (0.875 in.) 13 orange channels @ 9.5 mm (0.375 in.)
Overall Weight:	18.82 kg (41.5 lbs)
Installation:	Three (3) metal angles fastened to each side of each blue channel with screws Blue channels installed over carriers, perpendicular to carriers Orange channels installed between blue channels such that channels alternate blue and orange Metal angles on blue channels used to support orange channels

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SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Overall Specimen Properties

Size:	2.78 m (109.375 in) wide by 2.44 m (96.0 in) long
Thickness:	0.09 m (3.5 in)
Weight:	20.98 kg (46.25 lbs)
Mass per Unit Area:	3.1 kg/m² (0.63 lbs/ft²)
Calculation Area:	6.774 m² (72.92 ft²)

Test Environment

Room Volume:	291.98 m³
Temperature:	20.3 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity:	59.3 % ± 0.6 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure:	98.3 kPa (Requirement not defined)

MOUNTING METHOD

Type E-400 Mounting: The test specimen was mounted across a metal fixture which was open at its top and bottom and enclosed at its sides, creating an enclosed airspace between the test specimen and the horizontal test surface. The specimen was supported across the span of the fixture by an array of metal slats. The numeral suffix in the designation is defined in ASTM E795-23 as the distance in millimeters from the exposed face of the test specimen to the test surface, rounded to the nearest integer multiple of 5. For the purposes of this report, the mounting designation uses the plane tangent to the topmost surfaces of the PET felt channels as a reference datum. Perimeter edges were sealed with metal framing and tape.

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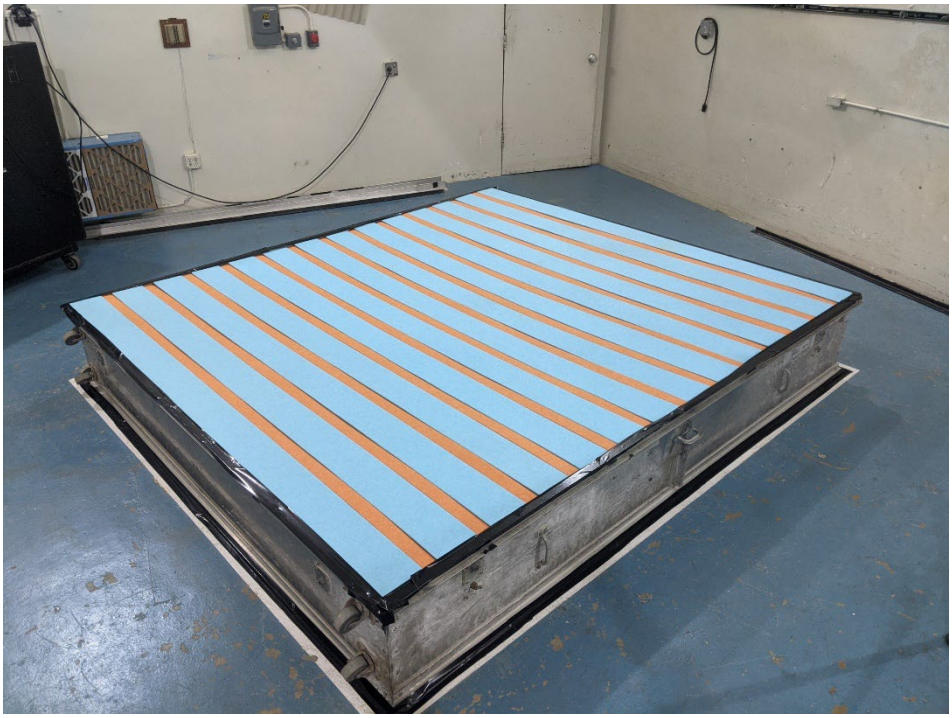

Figure 1 – Specimen mounted in test chamber

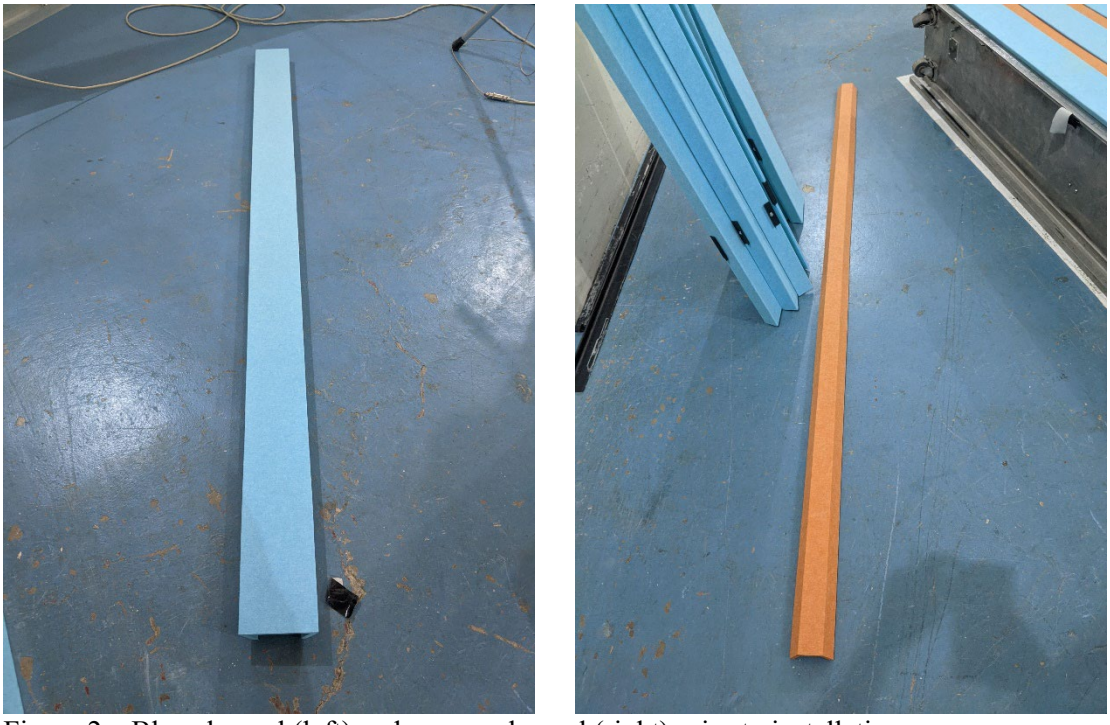

Figure 2 – Blue channel (left) and orange channel (right) prior to installation

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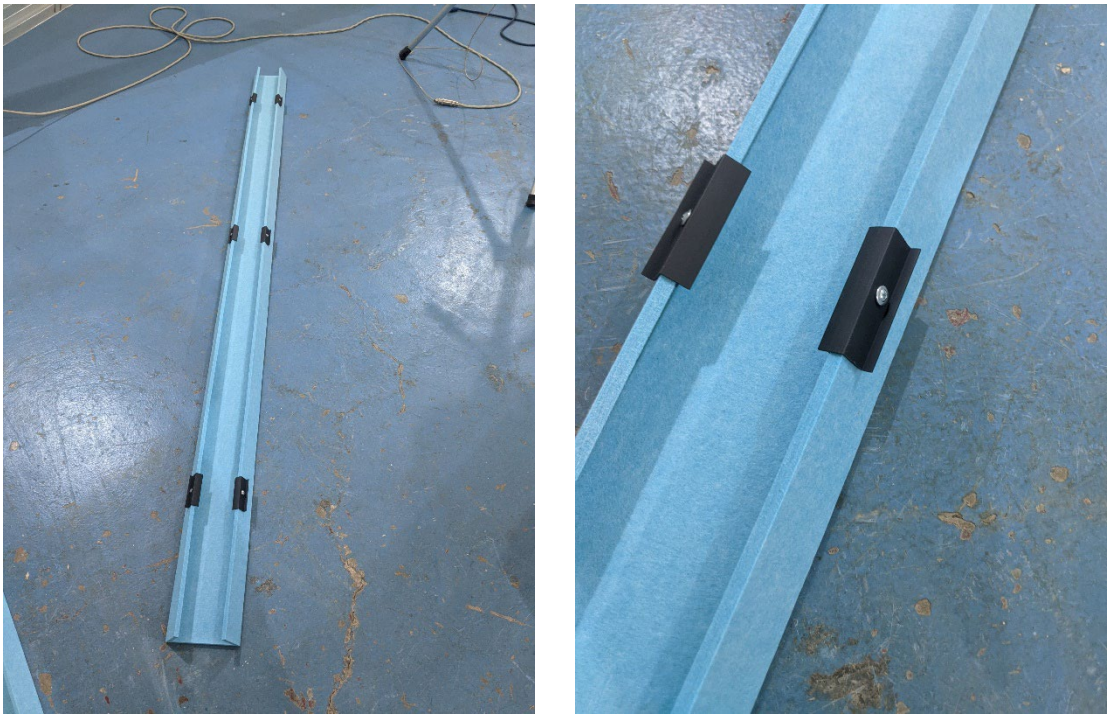

Figure 3 – Blue channel with metal angles installed (left), detail of metal angles (right)

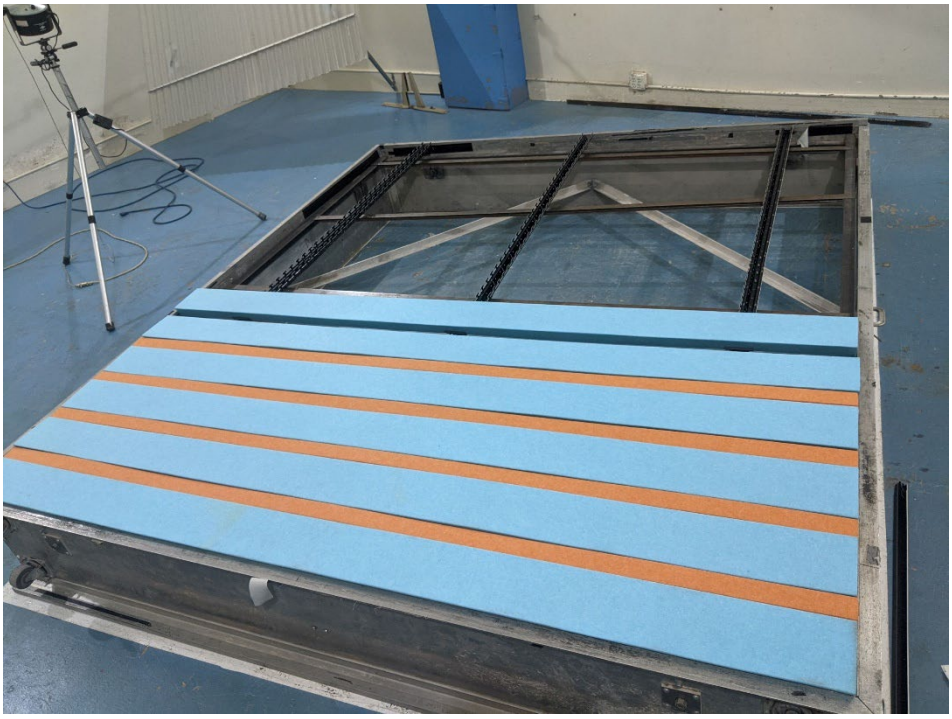

Figure 4 – Specimen carriers installed in E-mount frame; specimen channels partially installed

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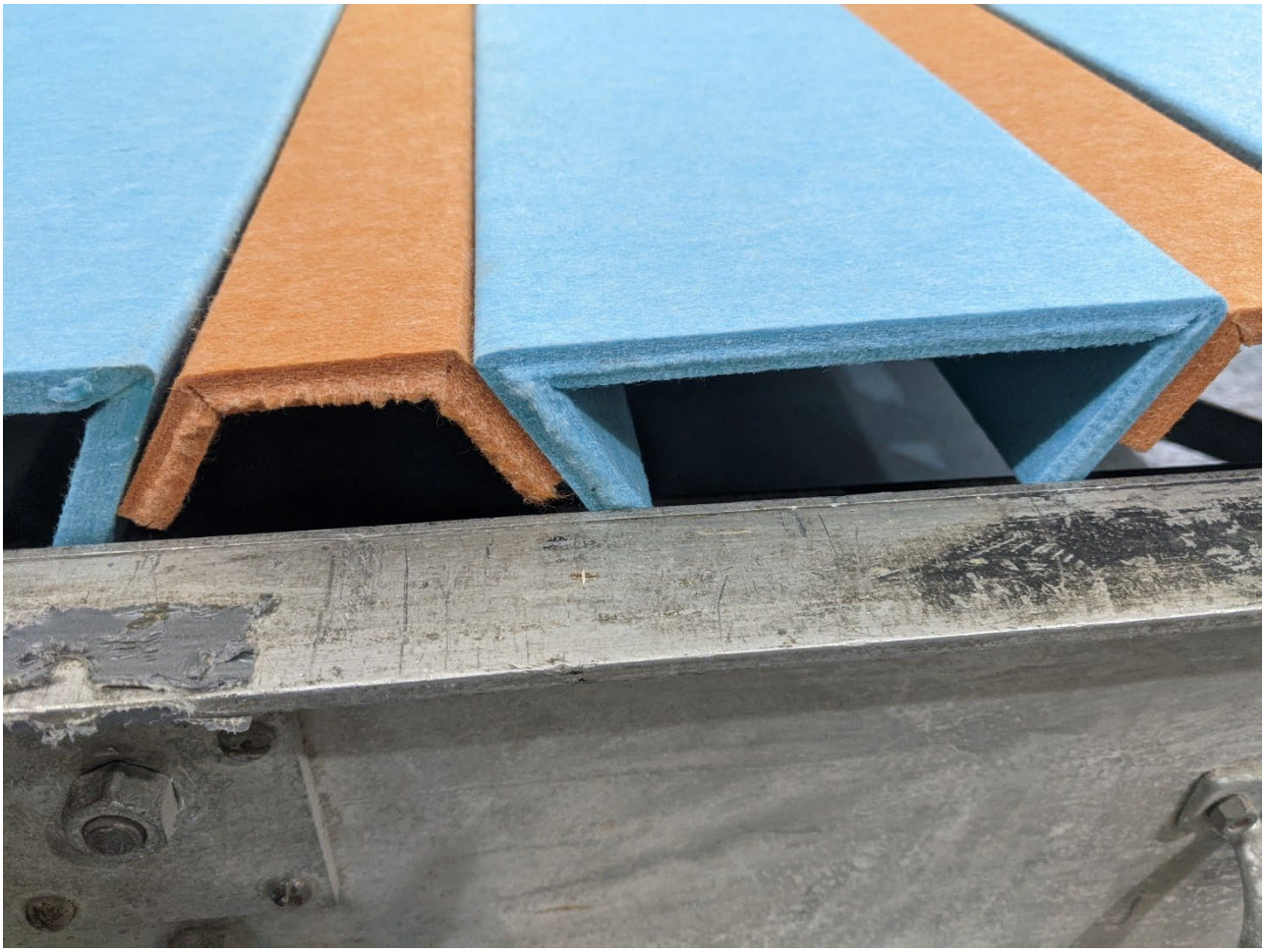

Figure 5 – Detail of specimen channels prior to perimeter sealing

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TEST RESULTS

Specimen total absorption and absorption coefficient are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages.

1/3 Octave Center Frequency (Hz)	Total Absorption (m^2)	Total Absorption (Sabins)	Absorption Coefficient
100	5.77	62.16	0.85
** 125	6.15	66.21	0.91
160	5.02	54.02	0.74
200	6.29	67.71	0.93
** 250	6.55	70.50	0.97
315	5.95	64.08	0.88
400	5.40	58.11	0.80
** 500	4.58	49.25	0.68
630	5.71	61.51	0.84
800	6.22	66.98	0.92
** 1000	6.24	67.12	0.92
1250	6.68	71.91	0.99
1600	6.87	73.92	1.01
** 2000	6.95	74.86	1.03
2500	7.04	75.74	1.04
3150	7.13	76.77	1.05
** 4000	7.05	75.89	1.04
5000	6.91	74.39	1.02

SAA = 0.92
NRC = 0.90

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TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-23 Section 3.1.1 as the arithmetic average of the sound absorption coefficients of a material for the twelve one-third octave bands from 200 Hz through 2500 Hz, inclusive, rounded to the nearest integer multiple of 0.01.

The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the arithmetic average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, rounded to the nearest integer multiple of 0.05.

Tested by _____
Marc Sciaky
Senior Experimentalist

Report by _____
Keith Kimberling
Test Engineer

Approved by _____
Eric P. Wolfram
Laboratory Manager

Digitally signed by
Eric P Wolfram
Date: 2024.01.15
13:35:36 -06'00'

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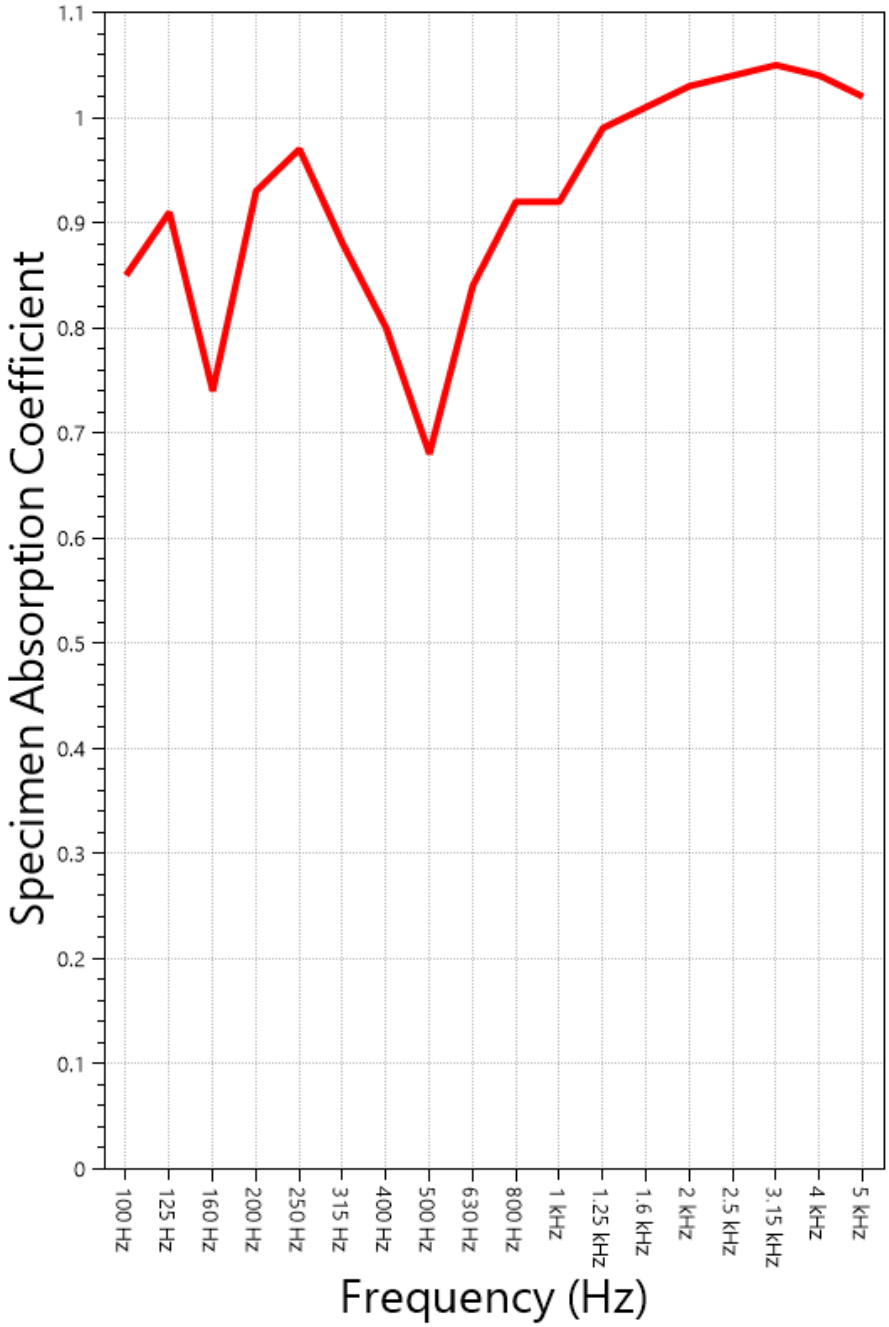
SOUND ABSORPTION REPORT

Fazr Ceiling Channel (Filled)



SAA = 0.92
NRC = 0.90

NVLAP TESTING
NVLAP LAB CODE 100227-0

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APPENDIX A: Extended Frequency Range Data

Specimen: Fazr Ceiling Channel (Filled) (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-23, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	**Total Absorption** (Sabins)	**Absorption Coefficient**
31.5	27.13	0.37
40	14.25	0.20
50	32.08	0.44
63	32.99	0.45
80	35.77	0.49
100	62.16	0.85
125	66.21	0.91
160	54.02	0.74
200	67.71	0.93
250	70.50	0.97
315	64.08	0.88
400	58.11	0.80
500	49.25	0.68
630	61.51	0.84
800	66.98	0.92
1000	67.12	0.92
1250	71.91	0.99
1600	73.92	1.01
2000	74.86	1.03
2500	75.74	1.04
3150	76.77	1.05
4000	75.89	1.04
5000	74.39	1.02
6300	75.51	1.04
8000	76.64	1.05
10000	77.62	1.06
12500	77.43	1.06

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APPENDIX B: Instruments of Traceability

Specimen: Fazr Ceiling Channel (Filled) (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-042	3160-106968	2023-07-17	2024-07-17
Bruel & Kjaer Mic And Preamp G	Type 4943-B-001	2525858	2023-05-03	2024-05-03
Bruel & Kjaer Pistonphone	Type 4228	2781248	2023-07-12	2024-07-12
EXTECH Hygro 6015	SD700	A.116015	2023-05-31	2024-05-31

APPENDIX C: Revisions to Original Test Report

Specimen: Fazr Ceiling Channel (Filled) (See Full Report)

Date	Revision
2024-01-12	Original report issued

END