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TEST REPORT

SPONSOR: RIVERBANK ACOUSTICAL LABORATORIES | GENEVA, IL

PRODUCT NAME:

CLASSIC MID-20TH CENTURY COIN-OPERATED TELEPHONE BOOTH

TEST DATE:

FEBRUARY 6, 2023

TEST METHOD:

ASTM E596-22

STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF NOISE REDUCTION OF SOUND-ISOLATING ENCLOSURES

RATING:

NIC = 2

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Test Report

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SPONSOR: **Riverbank Acoustical Laboratories**
Geneva, IL

Noise Reduction
RAL™-NR23-002

CONDUCTED: 2023-02-06

ON: Classic Mid-20th Century Coin-Operated Telephone Booth

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 E596-22: "Standard Test Method for Laboratory Measurement of Noise Reduction of Sound-Isolating Enclosures." The single number rating of the specimen was calculated according to ASTM E413-22: "Classification for Rating Sound Insulation." 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.

SPECIMEN MEASUREMENTS & TEST CONDITIONS

The test specimen was designated by the sponsor as "Classic Mid-20th Century Coin-Operated Telephone Booth". Through a full external visual inspection performed on the test specimen, Riverbank personnel verified the following information:

Enclosure

Product Type:	Mid-20th century aluminum telephone booth
Materials:	Aluminum, steel, plastic, glass
Exterior Dimensions:	895 mm (35.25 in.) by 899 mm (35.375 in.)
Exterior Height	2191 mm (86.25 in.)
Interior Dimensions:	820 mm (32.28 in.) by 830 mm (32.68 in.)
Interior Height:	1960 mm (77.17 in.)
*Glass Thickness:	Average @ 5 mm (0.197 in.)
Overall Weight:	153.09 kg (337.5 lbs)

** Note: Glass thickness is based on the arithmetic average of ten (10) interferometer measurements taken at different locations on the specimen door and wall glass.*

Test Environment

Designation:	RAL Room 0
Volume:	291.98 m^3 (10,311.2 ft^3)
Temperature:	20.0 ± 0.2 °C (68.0 ± 0.4 °F)
Humidity:	62.8 ± 2.9 %
Barometric Pressure:	99.4 ± 0.1 kPa

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USEFUL VOLUME AND MICROPHONE POSITIONS

The entire interior space within the enclosure was designated as the useful volume, described in Section 3.2.2 of ASTM E596-96 (2016). The useful volume was measured at 1.33 m^3 (47.1 ft^3).

Four (4) microphone positions were used to sample the sound field inside the enclosure. The positions were at four different heights near the approximate horizontal center of the enclosure interior. Microphone positions were located at least 300 mm (11.811 in.) from interior surfaces.

The door panel was fully opened and closed ten (10) times prior to testing, to demonstrate operability. No further adjustments were made to operable components on the specimen.

Figure 1 – Specimen mounted in test chamber

Figure 2 – Specimen with door open, prior to test

Figure 3 – Detail of gap underneath specimen door

Figure 4 – Detail of vent openings at bottom of specimen

Figure 5 – Detail of specimen top

Figure 6 – Detail of specimen phone

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Figure 7 – Enclosure interior mic positions 1 and 2

Figure 8 – Enclosure interior mic positions 3 and 4

Figure 9 – Exterior mic position 1

Figure 10 – Exterior mic position 2

Figure 11 – Exterior mic position 3

Figure 12 – Exterior mic position 4

Figure 13 – Exterior mic position 5

Figure 14 – Exterior mic position 6

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2023-02-06

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TEST RESULTS

Noise reduction values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The maximum uncertainties for noise reduction levels recommended in ASTM E596-96 (2016) are as follows: 125 Hz to 160 Hz, 3.0 dB; 200 Hz to 250 Hz, 2.0 dB; 315 Hz to 4,000 Hz, 1.0 dB.

Frequency (Hz)	Noise Reduction (NR)	E413 (NIC) Deficiencies Sum = 24	Octave Band Noise Reduction (NR_{octi})	Measurement Uncertainty (95% C.L.)
100	-6			
125	-3	0	-3	*8.94
160	3	0		2.69
200	0	0		*5.73
250	3	0	2	1.17
315	6	0		1.94
400	6	0		2.17
500	3	0	4	1.36
630	3	0		1.35
800	2	2		1.89
1000	3	2	2	0.85
1250	2	4		1.82
1600	1	5		2.02
2000	2	4	2	1.73
2500	3	3		1.57
3150	4	2		1.46
4000	4	2	4	1.80
5000	5			
NIC	**2**			

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NOTES ON MEASUREMENT UNCERTAINTY

**Note: Many of the uncertainties given in the Test Results section are greater than the maximum uncertainties recommended in ASTM E596-96 (2016). RAL staff observed that the majority of noise reduction uncertainty came from variations in measured sound pressure level within the enclosure interior, rather than in the test chamber. This non-uniform measured sound field suggests the presence of standing waves and modal sound field within the enclosure.*

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: 2023.03.02
14:30:11 -06'00'

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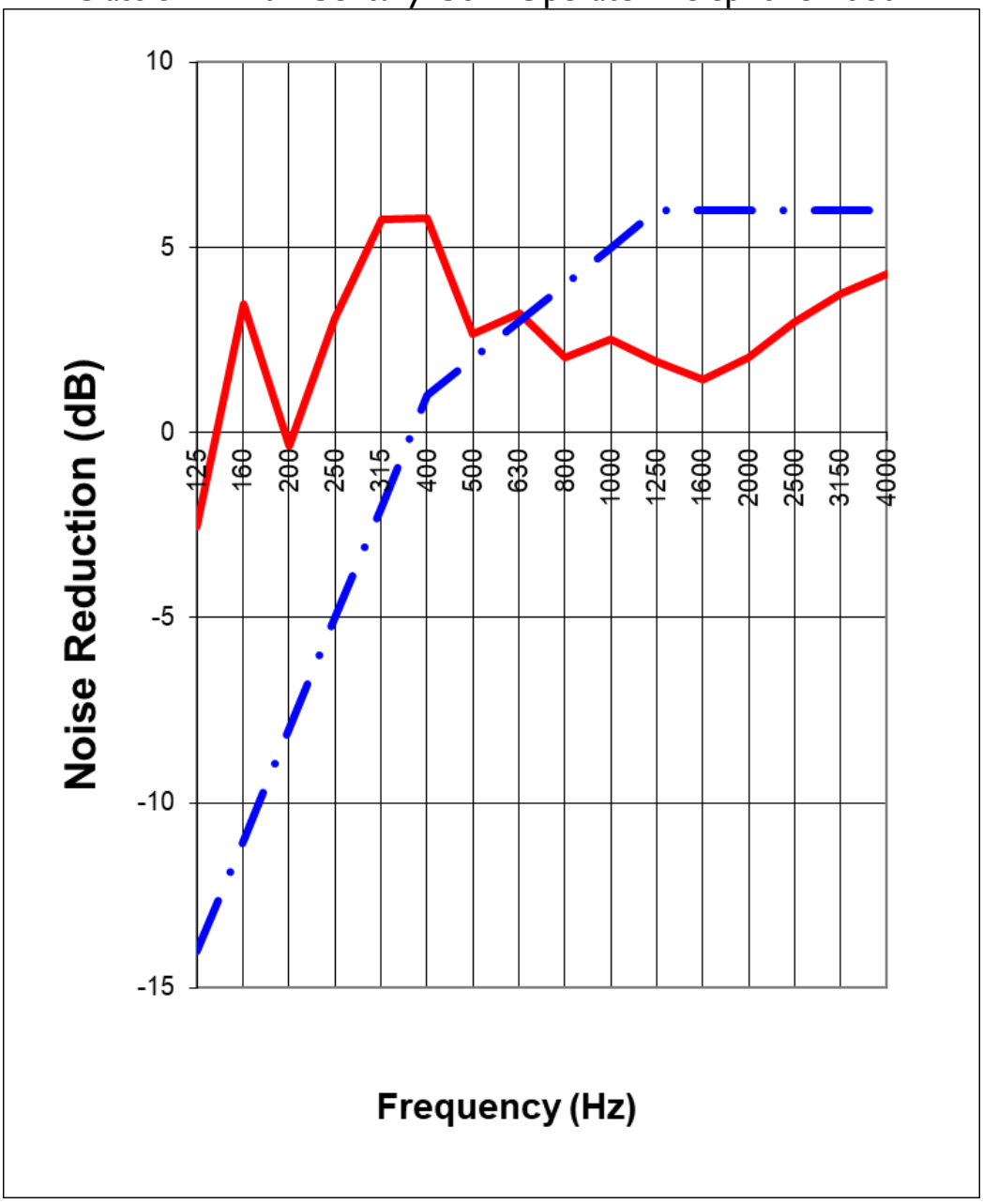
NOISE REDUCTION REPORT

Classic Mid-20th Century Coin-Operated Telephone Booth



NIC= 2

NOISE REDUCTION (dB)
NOISE ISOLATION CLASS CONTOUR

NVLAP TESTING
NVLAP LAB CODE 100227-0

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APPENDIX A: Instruments of Traceability

Specimen: Classic Mid-20th Century Coin-Operated Telephone Booth (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-042	3160-106968	2022-07-12	2023-07-12
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2525857	2023-01-12	2024-01-12
Bruel & Kjaer Pistonphone	Type 4228	2781248	2022-07-22	2023-07-22
Extech Temp., Humid. And Pressure Recorder	SD700	A099959	2022-03-22	2023-03-22

APPENDIX B: Revisions to Original Test Report

Specimen: Classic Mid-20th Century Coin-Operated Telephone Booth (See Full Report)

Date	Revision
2023-02-23	Original report issued

END