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## TEST REPORT FOR SOUNDPROOFING OF SECURITY DOOR

Client: Alexiou Doors

Report. No: 250307-21

Case No: 250129-33

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## INTRODUCTION

A security door was received for testing its airborne sound insulation properties from ALEXIOU DOORS. A soundproofing test was conducted to evaluate its performance. The primary objective was to determine the door's ability to reduce sound transmission and assess its effectiveness in providing acoustic insulation. The test was carried out under controlled conditions to ensure accurate and reliable results. Such evaluations are crucial for ensuring that security doors meet the required standards for noise reduction in residential, commercial, and industrial applications.

## APPLIED STANDARDS

The tests were conducted according to ASTM C423-22: Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

## PROCEDURE

The testing process began with measuring the background noise levels in both the source and receiving rooms to ensure minimal interference. A broadband noise source was then placed in the source room to generate a stable sound field. Sound pressure levels were measured in both rooms at multiple microphone positions to capture variations in sound transmission. The frequency range for these measurements spanned across multiple bands to provide a comprehensive assessment.

To further enhance the accuracy of the results, multiple test runs were conducted to account for potential variations. The security door was inspected to confirm that no air gaps or structural defects could affect the measurements. The acoustic performance was assessed under different conditions, including varying sound frequencies and intensities.

The results of the tests are shown in table 1.

## EQUIPMENT

During testing the following equipment was used:

- Omni-directional loudspeaker as a sound source
- Sound level meters

For calibration, compliance and identification of each individual equipment, with special regard for instruments, refer to detailed internal procedure in its current edition at the time of testing.

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## RESULTS

Table 1. Values obtained during the test

a/a	TEST ZONE	
	Source Room	Sound Proofing Room
Noise level (dB)*	88	61
	124	95

(\*) The values shown in table 1 are a mean average of 5 measurements at each frequency.

## CONCLUSIONS

After completing the test procedures, the security door's sound insulation performance was evaluated, and the results were analyzed to assess its effectiveness in soundproofing. The measurements taken in the source room were 88 dB and 124 dB, while the corresponding measurements in the receiving room were 61 dB and 95 dB, respectively. This indicates that the security door provided a sound reduction of 27 dB at lower frequencies and 29 dB at higher frequencies. These results suggest that the door effectively reduces airborne noise, making it suitable for applications where sound insulation is critical. The observed sound reduction values demonstrate that the door meets the expected performance criteria for noise control, contributing to a quieter and more secure environment.

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ANNEX A



Figure 1: Door in the as delivered state before the start of the test, sectioning the two rooms.



Figure 2: Door in the as delivered state before the start of the test, sectioning the two rooms.

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Figure 3: Measurement taken inside the sound proofing room during the test.

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