

VicBooth Office 1x1

Speech Level Reduction Measurements

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Doc. Revision History

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V1	30/09/2021	First Issue

Doc. Validation (latest Issue)

Revision	Date		Prepared by	Reviewed by	Verified by
V1	30/09/2021	Initials	JF	GP	GP
		Signature	J Ferreira	G Pires	G Pires

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Executive Summary

The VicBooth Office is a modular sound insulation booth, designed to be used in several possible applications within the Workspace market.

In September 2021, the VicBooth Office 1x1 was characterized in terms of its Speech Level Reduction (DS,A) according to ISO 23351-1. These tests were carried out in Vicoustic's R&D facilities, in the Reverberation Chamber.

During the tests, Vicoustic has performed the following construction layout validation for the VicBooth Office:

CL1 – VicBooth Office 1x1 with standard walls and with a standard glazing door;

The following results were obtained for the tested configurations:

CL1 – $D_{S,A} = 26,8$ dB;

According to the values obtained for the Speech Level Reduction parameter ($D_{S,A}$) and the criteria provided by the international standard, it is possible to conclude that the VicBooth Office is a Class B enclosure, meaning that according to the referred standard it “produces acceptable speech privacy if the background noise level of the room is at least 35 dB LAeq”.

It should be noted that according to best practice guidelines (BCO / BREEM, etc) the minimum recommended background noise level for different office spaces is:

Large conference rooms (> 50 people)	35 dB LAeq
Small conference rooms (< 50 people)	40 dB LAeq
Cellular Offices	40 dB LAeq
Audio Visual Suites	40 dB LAeq
Open Plan Office	45 dB LAeq

Therefore, it is possible to conclude that VicBooth Office can provide acceptable speech privacy in any of the modern office spaces.

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1. Introduction

The VicBooth Office is a modular sound insulation booth, designed to be used in several possible applications within the Workspace segment.

In September 2021, the VicBooth Office 1x1 was characterized in terms of its Speech Level Reduction ($D_{S,A}$) according to ISO 23351-1. These tests were carried out in Vicoustic's R&D facilities, in the Reverberation Chamber.

During the tests, Vicoustic has performed the following construction layout validation for the VicBooth Office.

This report describes the methodology used and the results obtained during the tests.

Acoustic terms, definitions and symbols used in this document are presented at the Glossary at the end of this report.

2. VicBooth Office Speech Level Reduction

2.1 Level Reduction Values (D values)

VicBooth Office's Level Reduction values in octave bands (D) have been characterized according to ISO 23351-1: *Acoustics – Measurement of speech level reduction of furniture ensembles and enclosures – Part 1: Laboratory Method*.

During the tests, Vicoustic has performed the following construction layout validation:

CL1 – VicBooth Office 1x1 with standard walls and new door and doorframe systems.

Table 1 presents the values obtained for the tested configuration.

f (Hz)	CL1 - D (dB)
125	17,8
250	24,6
500	25,4
1000	33,0
2000	32,5
4000	37,8
8000	40,6

Table 1 – VicBooth Office – Tested configuration
for Level Reduction (sound power levels)

Figure 1 presents the Level Reduction (D) in dB, obtained for the tested Construction Layout.

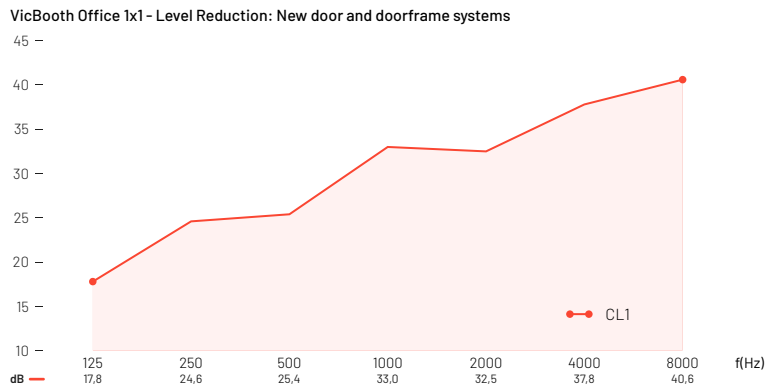


Figure 1 - VicBooth Office 1x1 - Level Reduction (D) for CL1.

Figure 2 shows the VicBooth Office 1x1 being tested for the Speech Reduction Levels.



Figure 2 - VicBooth Office 1x1 - Left: reference box with test specimen (VicBooth Office 1x1);
Right: reference box without test specimen (VicBooth Office 1x1).

2.2 Speech Level Reduction ($D_{S,A}$)

Based on the D values stated on Table 1, the $D_{S,A}$ for the tested VicBooth Office 1x1 Construction Layout was calculated according to ISO 23351-1: *Acoustics – Measurement of speech level reduction of furniture ensembles and enclosures – Part 1: Laboratory Method*.

The $D_{S,A}$ is a single number rating that represents the reduction of the A-weighted sound power level of speech, caused by the test specimen (i.e. the VicBooth Office). This standardized single value parameter allows for the comparison between different products, in terms of their ability to reduce the A-weighted sound power level of speech, regardless of the environment (as sound power levels are used), according to the standard.

Table 2 presents the $D_{S,A}$ for the tested VicBooth Office 1x1 Construction Layout, in dB.

f (Hz)	$D_{S,A}$ (dB)
CL1	26,8

Table 2 - VicBooth Office 1x1 - Speech Level Reduction

2.3 Classification according to $D_{S,A}$

Based on the $D_{S,A}$ value obtained according to ISO 23351-1: *Acoustics – Measurement of speech level reduction of furniture ensembles and enclosures – Part 1: Laboratory Method*, the standard attributes a classification for enclosures (Annex D from the standard).

The VicBooth Office 1x1 construction layout that was tested presents a $D_{S,A}$ value of 26,8 dB, which is classified as a Class B enclosure, according to the standard.

The standard also specifies that, a Class B product will likely produce acceptable speech privacy if the background noise level of the room it is inserted in is at least 35 dB ($L_{A,eq}$).

3. Conclusions

The VicBooth Office is a modular sound insulation booth, designed to be used in several possible applications within the Workspace market.

In September 2021, the VicBooth Office 1x1 was characterized in terms of its Speech Level Reduction (DS,A) according to ISO 23351-1. These tests were carried out in Vicoustic's R&D facilities, in the Reverberation Chamber.

During the tests, Vicoustic has performed the following construction layout validation for the VicBooth Office:

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Open Plan Office	45 dB LAeq

Therefore, it is possible to conclude that VicBooth Office can provide acceptable speech privacy in any of the modern office spaces.

Glossary

D (dB) – Sound Power Level reduction values in octave bands – difference between the sound power level radiated by the reference box without the test specimen and the sound power level radiated by the reference box with the test specimen (both with the sound source on and inside the reverberation chamber). Frequency-dependant values.

D_{s,A} (dB) – Speech Level Reduction, it is the single-number rating given by the reduction of the A-weighted sound power level of speech, caused by the specimen under test.

Main Office, R&D & Logistics

Avenida do Polo 3, N° 159, Carvalhosa
4590-137 Paços de Ferreira
Portugal

Office

Rua Quinta do Bom Retiro, N° 16, Armazém 9
2820-690 Charneca da Caparica
Portugal

P (+351) 212 964 100

Info and Sales

E sales@vicoustic.com

Project Department

E projects@vicoustic.com

Marketing Department

E marketing@vicoustic.com

www.vicoustic.com

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INNOVATIVE ACOUSTIC SOLUTIONS