



AGH University of Science and Technology

Faculty of Mechanical Engineering and
Robotics

Department of Mechanics and Vibroacoustics



Report title:

**Measurement of screen sound attenuation
CELL 1600x400**

Client:

**MARBET Sp. z o.o.
ul. Chochołowska 28,
43-346 Bielsko-Biała**

Contract numer:

5.5.130.197

Kraków June 2020

Institution conducting the research:	AGH University of Science and Technology Faculty of Mechanical Engineering and Robotics Department of Mechanics and Vibroacoustics	
Subject:	Measurement of screen sound attenuation CELL 1600x400	
Client:	MARBET Sp. z o.o. ul. Chochołowska 28, 43-346 Bielsko-Biała	
Date of order:	22.06.2020	
Number of acceptance of the offer:	WIMiR/KMiW/0154-27/2020	
Date of acceptance of the offer:	24.06.2020	
Contract numer:	5.5.130.197	
Project manager:	dr inż. Tadeusz Kamisiński, prof. AGH	Signature:
Technical specialist:	dr inż. Artur Flach dr inż. Adam Pilch dr inż. Jarosław Rubacha mgr inż. Jacek Frączek	
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Stamp:		

The results presented in this report refer only to measured samples.

Results in this report refer only to the tested sample.

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1. Introduction

1.1. Base of the report

The report is based on the order from 22.06.20 and confirmation of acceptance of the order number WIMiR/KMiW/0154-27/2020 from 24.06.2020.

Standards:

- PN ISO 10053:2001:2005 - *Acoustics — Measurement of office screen sound attenuation under specific laboratory conditions;*
- PN-EN ISO 3745:2012 - *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for anechoic rooms and hemi-anechoic rooms;*

1.2. Subject, aim and scope of the study

The aim of the study was to make a measurement of screen sound attenuation.

The scope of the study was to:

- prepare measurement station,
- make measurements of the acoustic parameters,
- create the report,

2. Description of the specimen

Description of the specimen	
Name:	CELL 1600x400
Producer:	MARBET Sp. z o.o. ul. Chochołowska 28, 43-346 Bielsko-Biała
Description:	Thermoformable Felt
Element size [mm]:	1600x1200 with desk
Screen size [mm]:	8000x1200 with desks
Element number:	5
Sample mounting	
Mounting method:	The tested elements were mounded to desks and placed freely on the reflecting floor, closely next to each other. The measuring stand is shown in Figure 1.

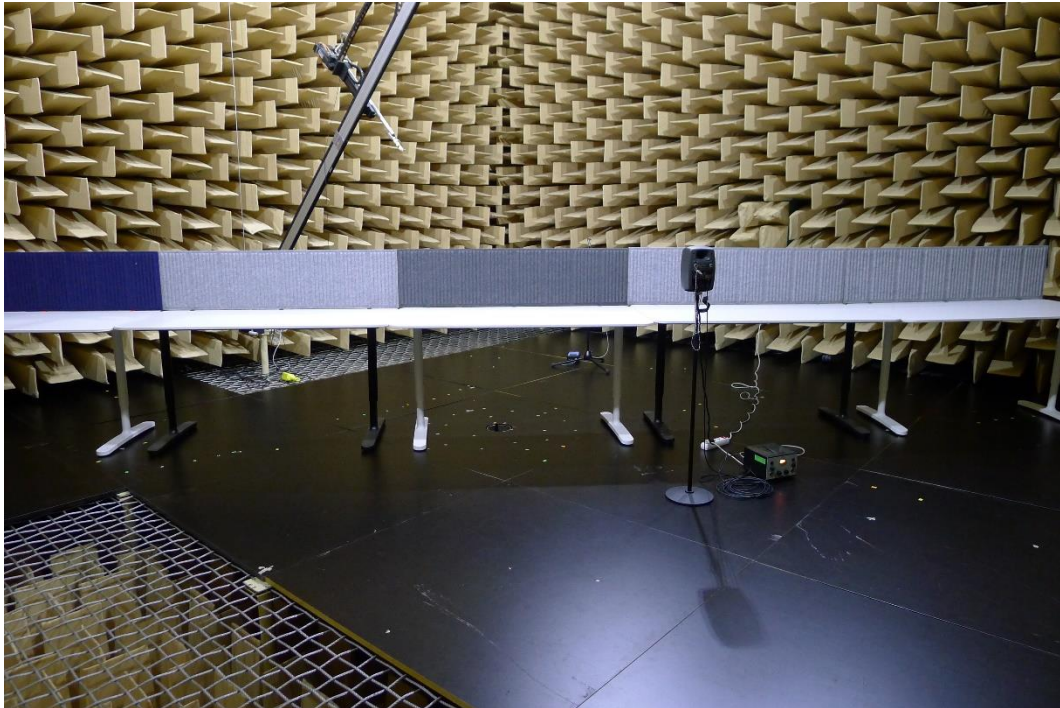


Figure 1 View of the screen in the anechoic chamber

3. Measurement methodology and test station

Description of the measurement method:	
Measurement method:	Measurements of the sound pressure level with the screen were made when the speaker and the microphone were placed in a line passing through the center of the screen at the joining of elements. The calculations of the screen acoustic attenuation were based on the standard PN-ISO 10053:2001. The measurements were made in an anechoic chamber that meets the requirements of PN-EN ISO 3745.
Measurement signal:	Pink Noise
Measurement devices:	
Sound sources:	Broadband active loudspeaker according to PN-ISO 10053:2001
Noise generator:	B&K 1405
Power amplifier	-
Calibrator	B&K 4231
Microphone:	G.R.A.S. 40AN
Preamplifier:	SV01
Analizator:	SVAN 912

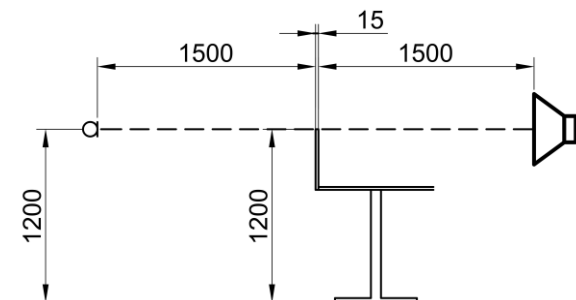


Figure 2 Scheme of test station: screen configuration.

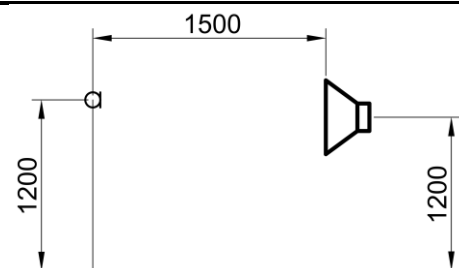


Figure 3 Scheme of test station: reference position.

4. Measurement results

The results of the screen sound attenuation were presented in the form of report card. The values of the averaged sound attenuation $\Delta L_{s,av}$ and the weighted sound attenuation $\Delta L_{s,w}$ were calculated according to PN-ISO 10053:2001.



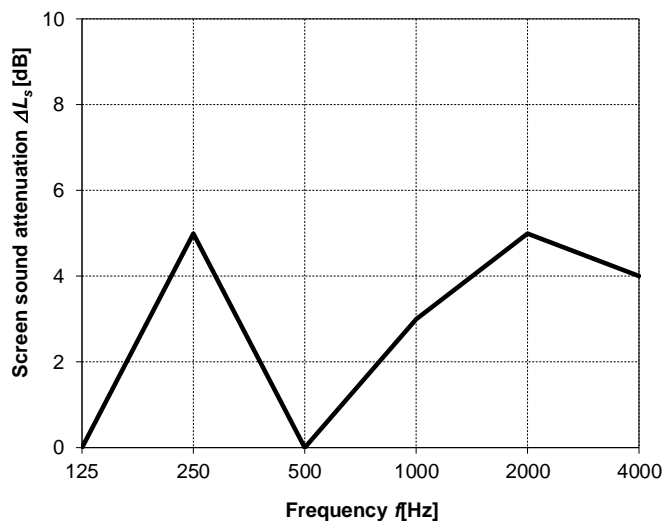
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Client:
MARBET Sp. z o.o.
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 43-346 Bielsko-Biała

**Measurement of office screen sound attenuation under specific laboratory conditions
 according to PN-ISO 10053:2001**

Sample: CELL 1600x400	Test Date: 24.06.2020
Producer: MARBET Sp. z o.o. ul. Chochołowska 28 43-346 Bielsko-Biała	Measured sample: Total size (with desks): [mm]: 8000 x 1200 Element size (with desk): [mm]: 1600 x 1200 Elements number: 5
	Measurement conditions: Temperature t [°C]: 23,5 Rel. humidity h [%]: 48,4 Anechoic chamber volume V [m ³]: 342

f [Hz]	ΔL_s [dB]	$\Delta L_{s,\bar{s}r}$ [dB]	$\Delta L_{s,w}$ [dB]
125	0		
250	5		
500	0	3	2
1000	3		
2000	5		
4000	4		



ΔL_s - Screen sound attenuation PN-ISO 10053:2001
 $\Delta L_{s,av}$ - Averaged screen sound attenuation PN-ISO 10053:2001
 $\Delta L_{s,w}$ - Weighted screen sound attenuation PN-ISO 10053:2001

Stamp:	Project manager: dr hab. inż. Tadeusz Kamisiński, prof. AGH kamisins@agh.edu.pl	Technical specialist: dr inż. Artur Flach dr inż. Adam Pilch dr inż. Jarosław Rubacha mgr inż. Jacek Frączek
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