

ACOUSTIC TEST REPORT

FIXTURE DATA

Manufacturer: Clay Paky s.r.l.
Fixture model: Volero Cube
Date: 2024-09-17

TESTING ENVIRONMENT

The acoustic testing took place within an EMC Phonometric chamber situated at Clay Paky's laboratory (Via Pastrengo, 3/b – 24068 Seriate (BG) – ITALY).

To assess the acoustic pressure produced by the fixture, four acoustic analyzers have been employed. The selected model is as follows:

ACOUSTIC ANALYZER

Manufacturer: NTi Audio AG
Model: XL2 (s/n 6086)
Calibration due date: 2024-07-25

The fixture is centrally located within the EMC Phonometric chamber, with one microphone positioned to its left, one to its right, one in front, and one behind it.

The environmental conditions inside the semi-anechoic chamber were as described below:

EMC PHONOMETRIC CHAMBER

Temperature: 24.2°C
Humidity: 42.0% ±0.6%
Air pressure: 998 mbar ±00.6 mbar
Indoor noise: 22.2 dB

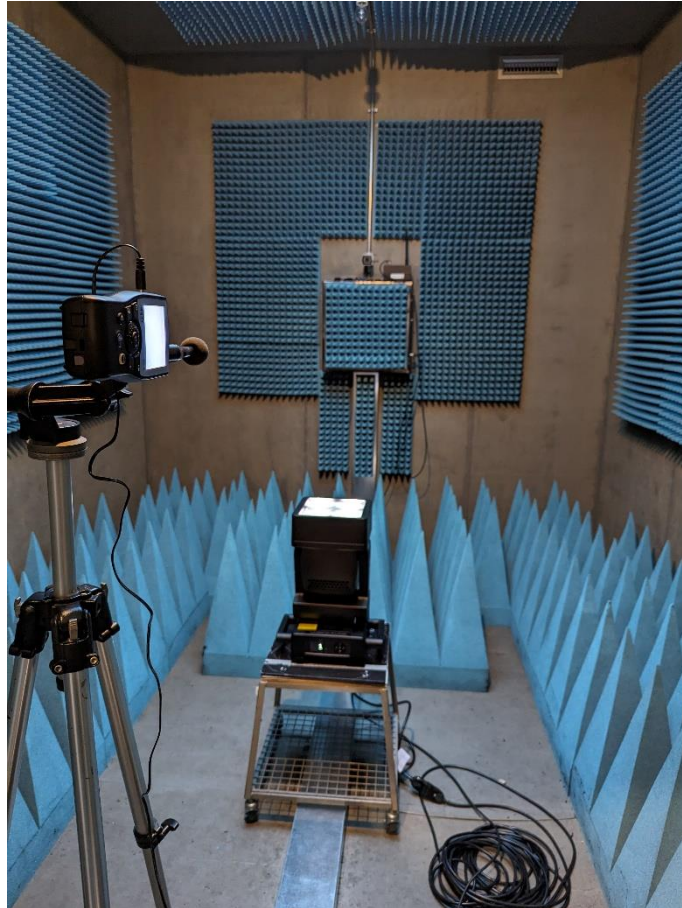
The temperature within the EMC Phonometric chamber was assessed utilizing the following thermometer:

THERMOMETER

Manufacturer: Lutron electronic enterprise Co., LTD.
Model: TM-947 SD (s/n I.413577)
Calibration due date: 2025-03-21

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The fixture was positioned within the EMC phonometric chamber, with four tripods strategically placed at 1 meter distance from each side of the fixture, accommodating a microphone for each orientation: one in front, one behind, one to the right, and one to the left, all positioned at a height of 1.5 meters.



TEST'S SETUP

TEST RESULT

TEST CONDITIONS	
Measurement distance:	1 m
Measurement height:	1.5 m

FAN MODE	NOISE [dB]
Auto	40.0
Silent	38.0
Constant	46.6
Theatre	38.1
Background	22.2

EMC PHONOMETRIC CHAMBER VALIDATION

Clay Paky's EMC Phonometric chamber and testing methodology was tested and validated by TÜV SÜD (ACU1480091418_signed_rev1).

The purpose of the test was to validate the measurement of background noise within the EMC Phonometric chamber. Multiple measurements were taken at different locations within the chamber to establish a comprehensive profile of the internal background noise.

Test location and test equipment used			
DEVICE N°	DESIGNATION	MODEL	MANUFACTURER
ACQ 08	Acquisition system	Apollo	Sinus
MIC 01	Microphone	378B02	PCB Piezotronics
MIC 02	Microphone	378B02	PCB Piezotronics
MIC 03	Microphone	378B02	PCB Piezotronics
MIC 04	Microphone	378B02	PCB Piezotronics
CAL 06	Calibrator	4228	Brül & Kjær
45_TIG	Themo Hygrometer Barometer	Tinytag View 2 TV-5400	Gemini Data Logger

The determination of uncertainty factors was conducted in accordance with "Accuracy method" based on IEC Guide 115. The level of risk to false accept and false reject items is described on ILAC-G8.

Declared uncertainties are obtained with factor $k = 2$ except if otherwise specified. For a 95% confidence level, the measurement uncertainties for defined system are:

TEST NAME	MEASUREMENT UNCERTAINTY
T. amb	$\pm 2.6 \text{ }^{\circ}\text{C}$
R.H. amb	$\pm 06\%$
Determination of the background noise in the EMC Phonometric chamber	$\pm 0.5 \text{ dB}$

The following were the environmental conditions within the EMC Phonometric chamber:

ENVIRONMENTAL CONDITIONS	
Ambient temperature:	$23.6 \text{ }^{\circ}\text{C} \pm 2.6 \text{ }^{\circ}\text{C}$
Relative humidity:	$41.0\% \pm 0.6\%$
Air pressure:	$998 \text{ mbar} \pm 0.6 \text{ mbar}$

Therefore, the average background noise in the EMC Phonometric chamber is:

CONDITIONS	MIN	AVERAGE	MAX
Inside the room while the office is operational, and machineries are turned on	20.8 dB	22.8 dB	26.7 dB
Inside the room while office is operational, and machineries are turned off	19.0 dB	20.1	21.5 dB
Inside the room while the office is operational with average noise generated	24.3 dB	25.3 dB	26.1 dB