



MENURA

ACOUSTIC LABS

Acoustic Testing Facility

Reverberation Chamber

Contact:



menuralabs.com



+91 9019426062



info@menuralabs.com

Location:

Office, Testing Lab, Experience Center

863D, 12th Main Rd, Koramangala 3
Block, Koramangala, Bengaluru,
Karnataka 560034

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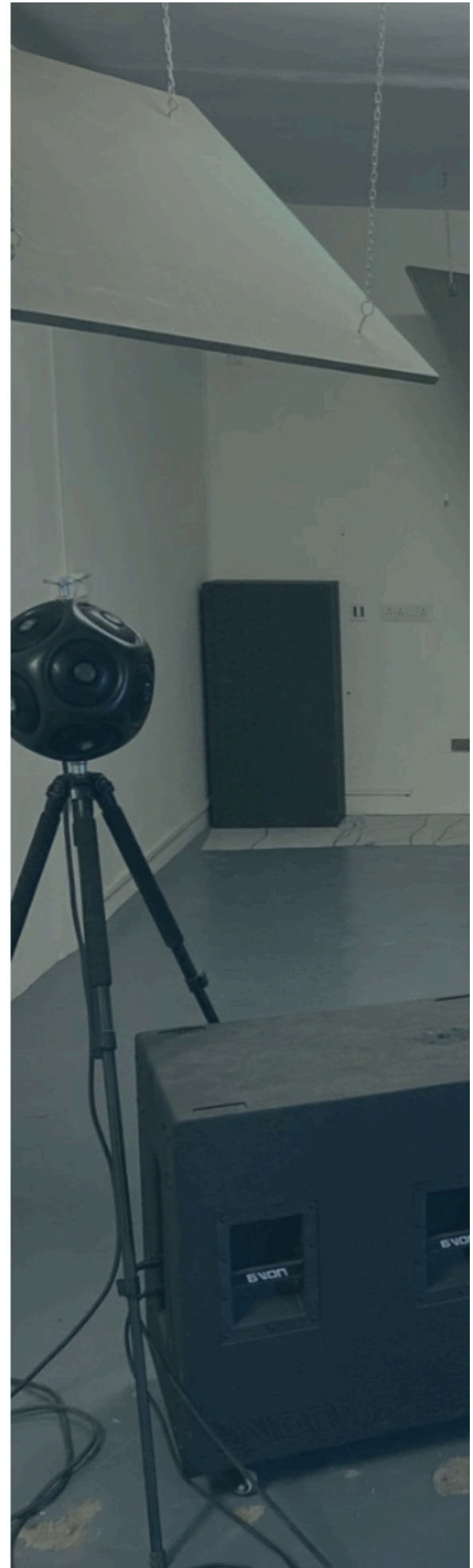
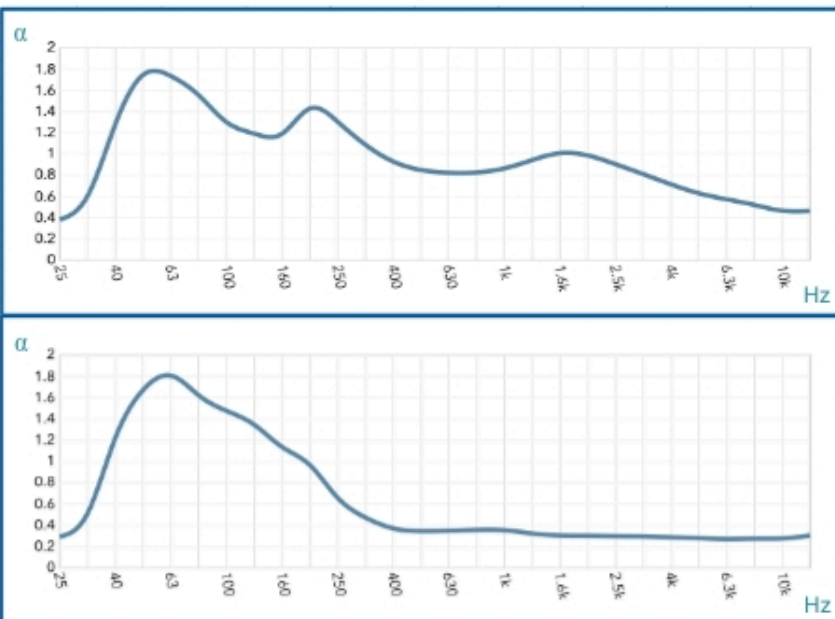


About Our Testing Facility

Our 186 m³ Reverberation Chamber allows us to conduct certified testing and acoustic analysis, for accurate sound absorption and reverberation time measurements. We are able to optimise and refine our own products by experimenting with various materials and mounting methods.

At this facility, we provide independent product testing for acoustic vendors and consultants. Our transparent process will include a detailed report of each test, with both pure data and graphical presentations, as well as diagrams and images of the test model. All test data is considered proprietary and treated with the highest confidentiality.

Our Acoustic Testing Facility is designed to comply with ISO 354 standards, for uniformity in the methods and conditions of measurement of sound absorption in reverberation rooms.





What are Reverberation Chambers?

Reverberation Chambers are often large rooms with hard, exposed surfaces, designed to reflect sound, in order to create a non-directional or diffused sound field.

They are typically used to measure and analyse the sound absorption coefficient of materials. They can also be used for microphone calibration and to measure the power of a sound source.

These spaces are made of closed-pore concrete surfaces, which reflect almost all sound. Large plates hang from the ceiling at various angles and act as diffusers. They distribute the sound in all directions, thus providing for a more uniform reverberant field. They also avoid the emergence of standing waves and the "flutter echo" effect, both of which could contaminate the acoustic measurements.

The sound source used for measurements is an omnidirectional speaker that emits sound in all directions. The impulse is often a "sine-sweep" that cycles through the frequency spectrum, in order to accurately observe the reverberant behaviour of sound, across the whole audible range.

According to ISO 354 standards, the volume of a Reverberation Chamber should be at least 150 m³. It is also stated that a chamber of a volume greater than 500 m³, will not be able to measure sound absorption accurately at high frequencies, due to air absorption.



Why use different mounting conditions for materials?

Testing a material under different mounting methods can be very informative, providing a more concrete understanding of the product and how it will act under varying conditions.

Once a client understands how a material or product will perform in a diverse set of positions within a space, they will be provided with a broader foundation upon which to incorporate and adapt the product most efficiently within their own space.



Technical Specifications ISO 354

Volume of Reverberation Room:

The volume of the reverberation room shall be at least 150 m³ and no greater than 500 m³.

Diffusion of the Sound Field:

The decaying sound field in the room shall be sufficiently diffuse. In order to achieve satisfactory diffusion whatever the shape of the room, the use of stationary or suspended diffusers or rotating vanes is, in general, required.

Microphones:

Microphones used for the measurement shall be omnidirectional, at positions which are at least 1,5 m apart, 2 m from any sound source and 1 m from any room surface and the test specimen.

Sound Source:

The sound source shall propagate an omnidirectional radiation pattern. Different sound source positions which are at least 3 m apart shall be used.

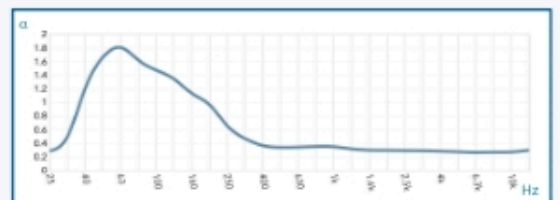
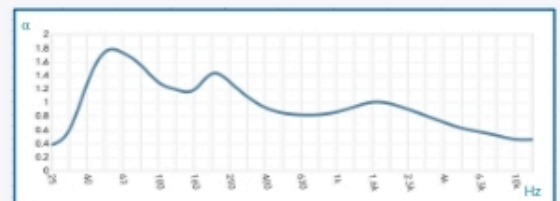
[ISO 354:2003(E)]

Humidity



Temperature

> 15° Celsius





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