P:VAD

Portable Variable Acoustic Device

THE NARROWBAND ABSORBER COMPANY

acoustic//grg

ISA INTERNATIONAL SOUND AWARDS

Created by acoustician Anthony Frost, the award winning Portable Variable Acoustics Device (P:VAD) is a flexible acoustic box that absorbs and diffuses sound to address the problems created by unwanted frequencies, everywhere from professional recording environments to home cinemas and studios.

Constructed from plywood and insulated with sheep's wool in the box cavity, P:VAD uses sustainable materials to deliver a solution that allows complete flexibility in dealing with the unique acoustic characteristics of any space. Used as a standalone device or configured in multiples, P:VAD adds a precise level of control for professional recording, playback and performance spaces, as well as in the home environment for the discerning audiophile.

P:VAD portability affords users easy transportation of highly effective acoustic treatment, opening up a world of possibilities for a huge range of spaces and applications where permanent installation is not possible.

The P:VAD absorbs down to 63Hz/80Hz, and with multiple devices (x3), the use of the plug-in will take the absorption down to 40Hz/50Hz. The larger the space, the more devices are required for effective sound control, so where 2 or 3 will suffice for a small to medium size control room, proportionally more devices will be required for larger spaces.

TECHNICAL SPECIFICATIONS	
Dimensions	525mm x 525mm x 360mm
Weight	Approx 14kg
Patent Pending	GB2103188.5 GB2003335.3
Colours	Black and Natural

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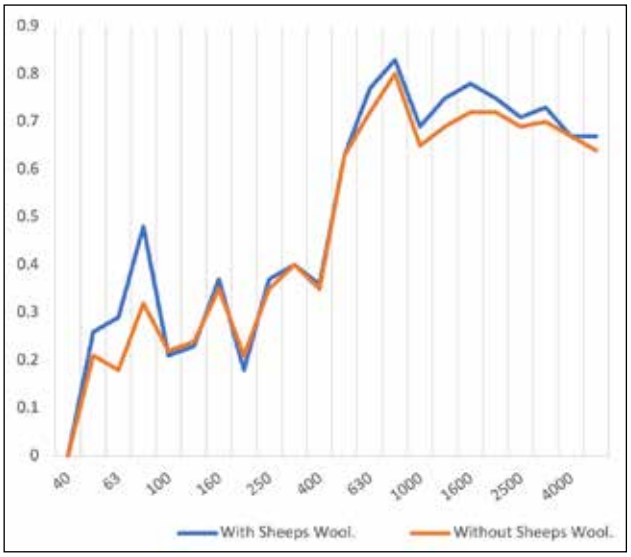
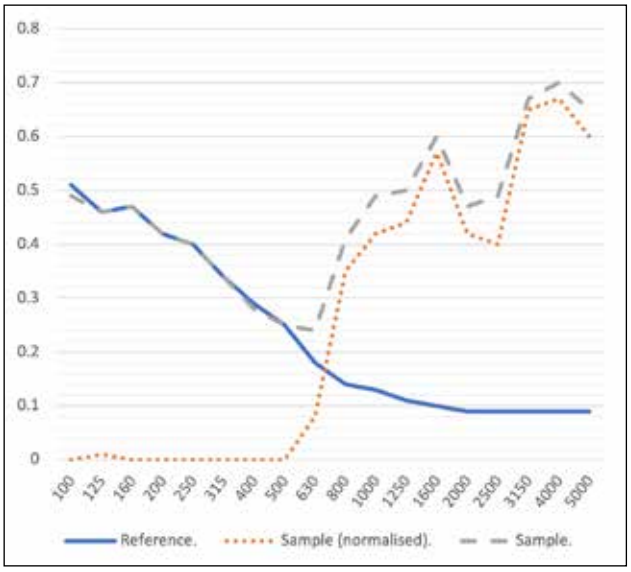
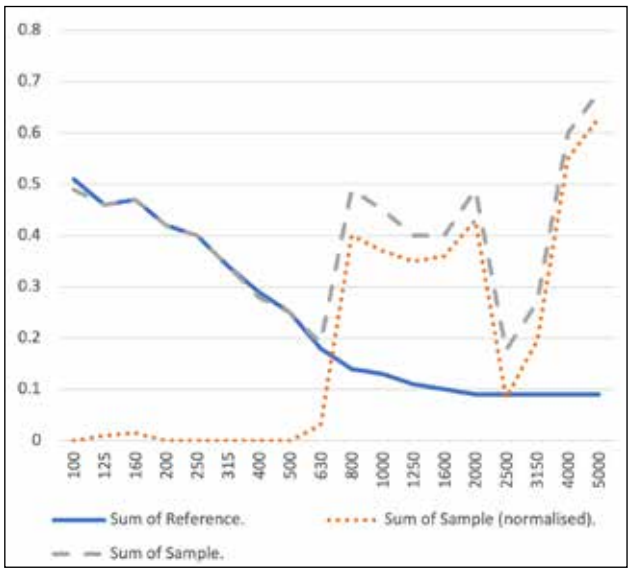
ABSORPTION GRAPH



DIFFUSION GRAPH ORIENTATION A



DIFFUSION GRAPH ORIENTATION B



Absorption Testing

Sound absorption tests were undertaken on the product in a reverberation chamber as per guidance provided in the standard. Therefore, these tests are benchmark tests conducted in an acoustically treated room. In addition to the University of Salford absorption tests, further absorption tests were conducted in a studio control room at Soundhub, Denmark by Schacoustics as per guidance provided in the standard, ISO 354:2003.

Although the studio control room had built-in acoustic treatment, the measured absorption results did correlate with the earlier University of Salford absorption tests. Initial tests were conducted in the small reverberation chamber at the University of Salford on six boxes arranged across the floor of the chamber. This showed absorption at 80Hz with and without 50mm thick sheep's wool placed in the box cavity. The absorption coefficient was improved with sheep's wool in the cavity. The overall absorption class for the product across the frequency spectrum 0Hz to 4000Hz with sheep's wool placed in the cavity was Class C. Without sheep's wool in the cavity the product behaved overall as a Class D absorber.

Further acoustic tests were conducted on the boxes at alternate locations in the reverberation chamber in an attempt to replicate a real world scenario. With four boxes arranged in a 2x2 formation along the back wall the fundamental frequency absorption was 63Hz.

Diffusion Testing

Diffusion tests were conducted using 3D models at a scale of 5:1. Due to the size of the boxes a test room to undertake diffusion tests would need to have been the size of a sports hall! The tests were undertaken at the University of Salford as per guidance provided in the standard, ISO 17497-2:2012 in their small, semi-anechoic chamber. The tests were conducted on 8 x scaled boxes in two different orientations; Orientation A with the boxes rotated so that the long convex curves were in a vertical position and Orientation B with the boxes rotated so that the long convex curves were in a horizontal position.

A boundary plane method was used, with the scattering measured in the plane being defined by the hard concrete floor of the semi-anechoic chamber. The measurements were made using 37 microphones arranged in an arch shape, spanning from -90° to 90° with angle steps of 5°. The loudspeaker source angles used were 0°, +30° and +60°.

Diffusion varies between frequencies dependent upon the angle of the source, the angle of the device, and the orientation of the box. two graphs are a snapshot at 0 degree's.