



### Hemiffusor

The scientifically designed and tested Hemiffusor™ that has become so popular for a broad range of applications including recording studios, home theater and music rooms is now available in an affordable, light weight, solid wood model. Each Hemiffusor™ W1 is hand crafted from Paulownia wood, which has earned itself the nickname 'The Environmental Tree' – see [www.tropaul.com](http://www.tropaul.com) for more information on its many ecological benefits.

Conventional acoustic treatments have relied on absorption for reflection control. Unfortunately, this can “deaden” a room and make it unsuitable for speech or music. Diffusive walls and ceilings are one of the most effective ways to simultaneously control room reflections and provide a natural ambiance. The Hemiffusor™ W1 uniformly scatters sound arriving from any direction into many directions, providing ideal distribution and coverage. Its unique shape creates an attractive, visually interesting acoustical surface

#### **Problem**

Specular reflections from flat, hard surfaces cause strong reflections that corrupt speech intelligibility and degrade music quality. Typically, fabric wrapped absorptive panels are used to control interfering reflections, with the undesirable side effect of deadening the space



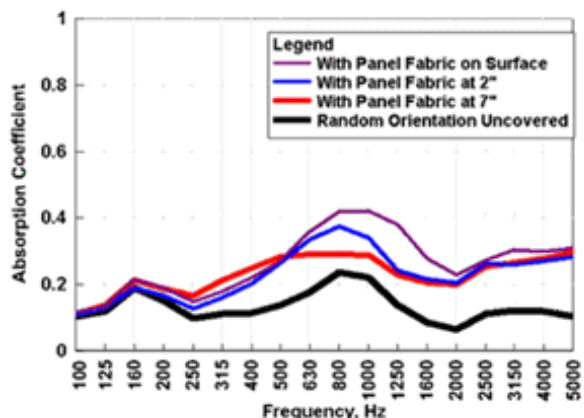
**Sound strikes a two dimensional diffusing**

#### **Solution**

The Hemiffusor™ W1 is the latest in a line of affordable, 2D QRD® diffusion panels. It offers twice the reflection attenuation of a 1D QRD®, because it uniformly scatters sound into a hemisphere. The Hemiffusor™ W1 provides uniform, omni-directional, broad bandwidth diffusion in an attractive ceiling or wall design element.

#### **Absorption**

While the primary function of the Hemiffusor™ W1 is to provide broad bandwidth diffusion, it also offers a modest and beneficial amount of absorption across the frequency spectrum with the strongest emphasis at 800 Hz. Absorption increases with the application of a fabric covering across the face of the unit.



Hz	Absorption Coefficient			
	With Panel Fabric on Surface	With Panel Fabric at 2"	With Panel Fabric at 7" column	Random Orientation Uncovered
100	0.12	0.11	0.11	0.10
125	0.14	0.13	0.14	0.12
160	0.22	0.19	0.21	0.19
200	0.19	0.17	0.19	0.15
250	0.15	0.13	0.17	0.10
315	0.18	0.16	0.21	0.11
400	0.22	0.20	0.25	0.12
500	0.27	0.26	0.28	0.14
630	0.36	0.33	0.29	0.18
800	0.42	0.37	0.29	0.24
1000	0.42	0.34	0.29	0.22
1250	0.38	0.24	0.23	0.14
1600	0.28	0.22	0.21	0.09
2000	0.23	0.21	0.20	0.06
2500	0.27	0.26	0.25	0.11
3150	0.30	0.26	0.27	0.12
4000	0.23	0.27	0.28	0.12
5000	0.31	0.28	0.30	0.10

### Diffusion

The Hemiffusor™ W1 offers significant diffusion compared to a flat reflector panel. Data will indicate how the reference reflector becomes more and more specular as the frequency increases, whereas the Hemiffusor™ W1 provides a constant diffusivity.

Testing completed, Diffusion Coefficients (actual performance standard) and Scattering Coefficients (for large space acoustical computer modeling only) will be published shortly.

### Installation

The Hemiffusor™ W1 is very easy to install on walls or ceilings using the supplied hook and loop fasteners for temporary mounting. Apply both sides of the hook and loop fastener to the rear of the Hemiffusor™ W1 in each corner on a flat area. Remove the protective paper from the exposed side and apply to the wall. For permanent mounting, construction adhesive must also be applied, where space allows on the back of the unit, along with the hook and loop fasteners. Construction adhesive is always recommended for direct ceiling application. The Hemiffusor™ W1 can also be inserted into a T-bar ceiling