

AcousticsFirst[®]

Aeolian[®] Sound Diffuser
Data Supplement



Asymmetric
Organic Quadratic
sound diffuser with
Implied Symmetry.

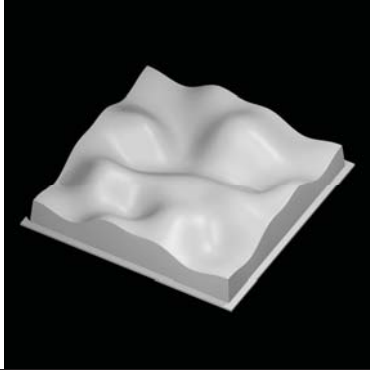


Diffusion - Diffraction - Scattering - Reflection

Toll-Free Number:

888-765-2900

AEOLIAN®



A patent pending, two dimensional, organic quadratic diffuser. Edge height variation is less than the flange width, creating an "implied edge" while maintaining a complete asymmetry which reduces acoustic lobing associated with some symmetrical designs.

Construction: Class A Thermoformed plastic with natural white finish.

Nominal Size: 2'x2'

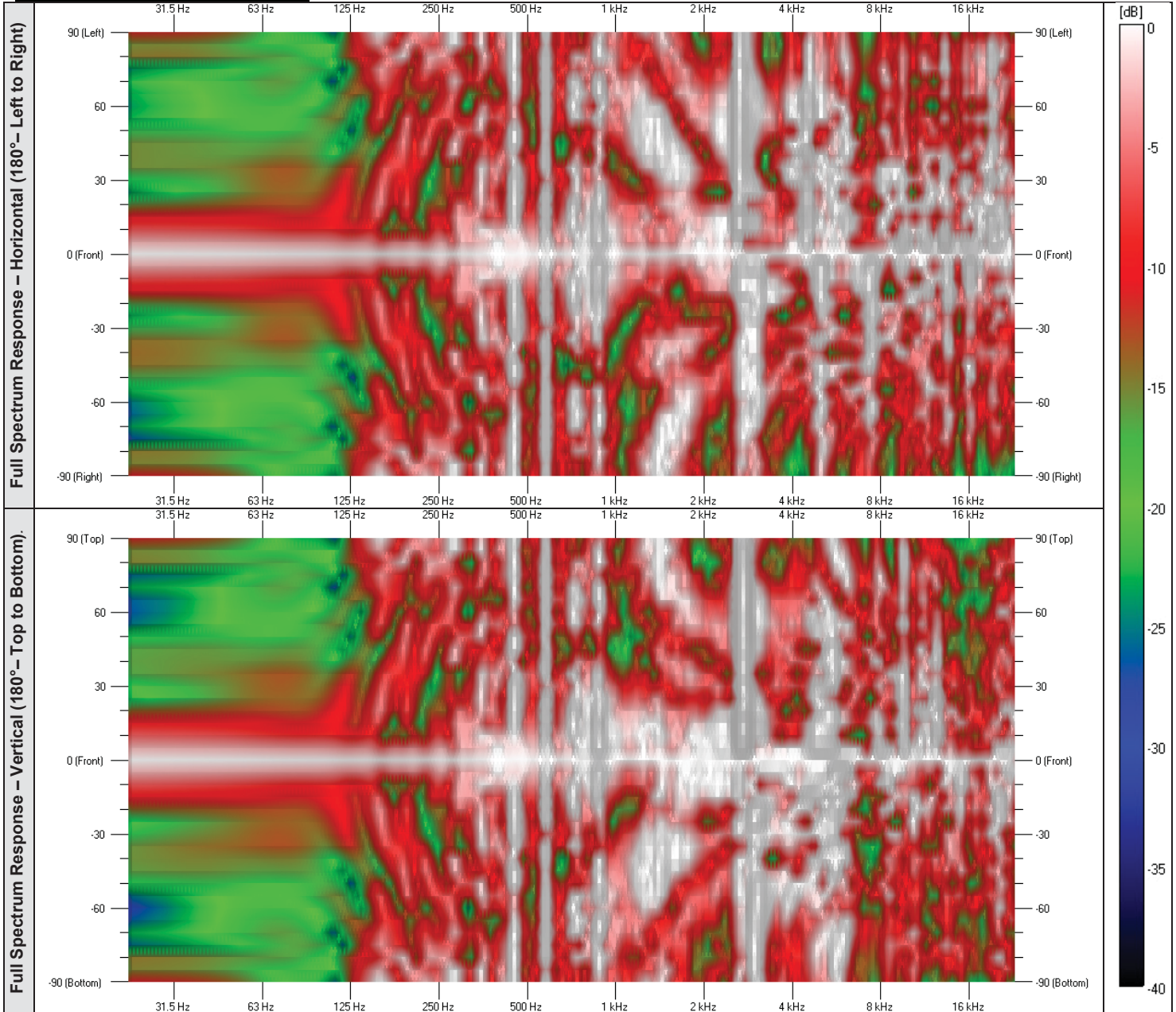
Depth: 5"

Mounting: Direct mount to wall/ceiling
 – OR – Fit into standard T-bar grids.

Modified 2D Quadratic Diffuser
 Asymmetric Organic Quadratic

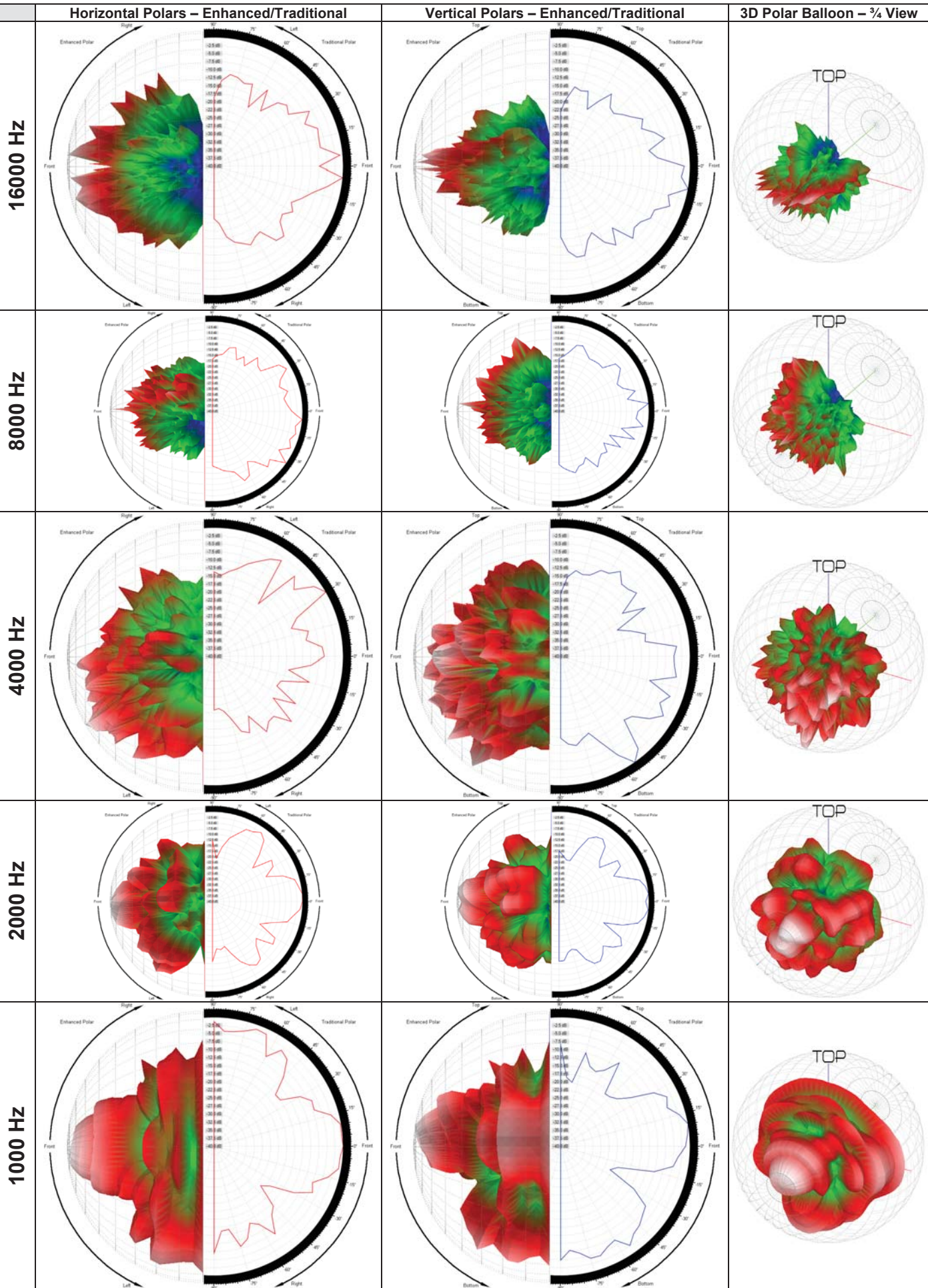
Operational Parameters:
 Diffusion: Mid to High-Mid band
 Primary: 1.6K- 7.5k
 Hemispheric Pattern (2D -150°H/V)
 Wide Phase & Directional Diffusion

Ceiling or Wall Mountable
 Asymmetric Distribution



| Sound Absorption Coefficients – Aeolian® Performance | | | | | | | |
|--|--------|--------|--------|---------|---------|---------|------|
| Mounting | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| Type A | 0.55 | 0.24 | 0.22 | 0.16 | 0.10 | 0.13 | 0.20 |
| E400 (No Insulation) | 0.40 | 0.26 | 0.26 | 0.25 | 0.17 | 0.15 | 0.25 |
| E400 (Insulated) | 0.41 | 0.24 | 0.25 | 0.25 | 0.17 | 0.15 | 0.25 |

The horizontal and vertical polars are displayed in Traditional and Enhanced format; the traditional view shows only the dB at an angle along the axis, the enhanced shows adjacent angles.

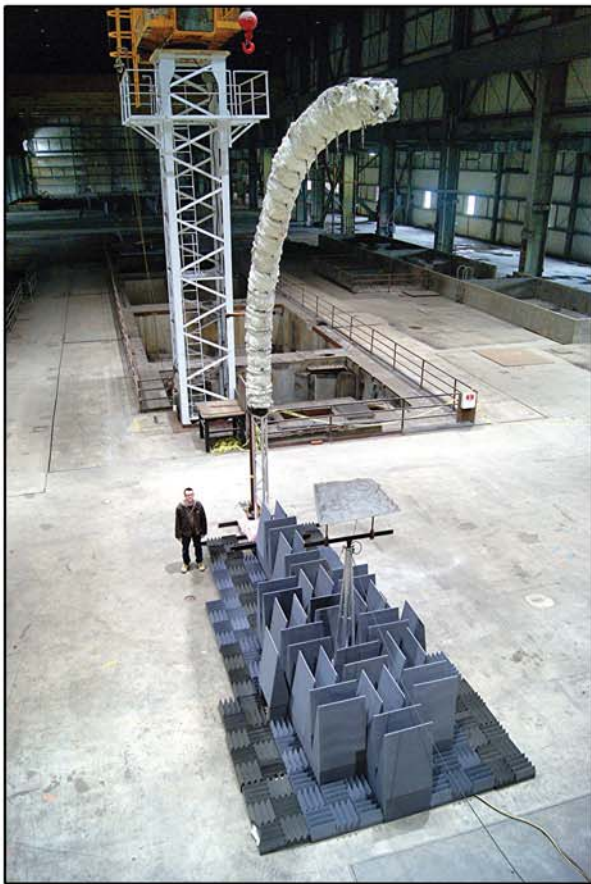


The information within this booklet is only part of the data currently available on the materials that were tested. An electronic component is also available upon request. This electronic data allows for access to the raw test results, enabling further refinement, including previously absent data describing the phase of the reflections, attenuation, and directionality with a granularity exceeding all prior published data.

This electronic data has been compiled for Acoustics First by NWAA Labs in Elma, WA.

Acoustics First is offering this data without warranty, upon request, as no universally accepted standard currently exists.

Contact us for more information. Additional test data and product configurations appear on the web site. More information will be added as it becomes available.



Above: Testing rig at NWAA Labs in Elma, WA,

What information is in this document, and how do you read it?

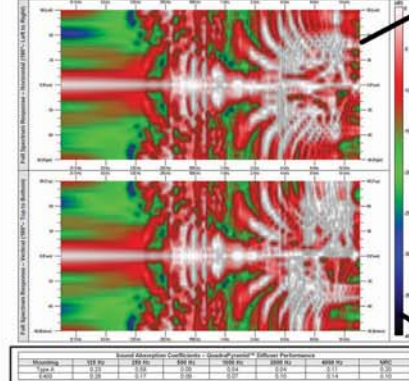
AcousticsFirst **QuadraPyramid™ Diffuser**

A patented, low-profile, geometric array diffuser. This diffuser is a proprietary array of 4 low-profile, offset pyramids, each rotated 90°. This provides a wide frequency range with a smooth and predictable response - without sacrificing the space of a larger diffuser.

Summary of Parameters:

- Construction: Class A Thermoplastic plastic with natural surface finish
- Material: 1/2" (12.7mm) Thick
- Depth: 2.75"
- Mounting: Glued mount to substrate
- Grid: 1/2" x 1/2" spaced 1/2" grid

Horizontal and vertical frequency maps:



Level of reflection (in dB) at each angle along the horizontal and vertical axis for every frequency tested.

Color Key for Acoustic Energy (dB)
The colors correspond to energy in dB. It covers a 40 dB range, from the loudest 0 (White) to -40 (Black).

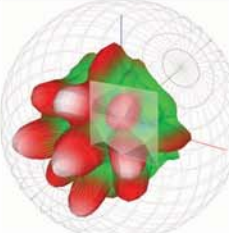
Sound Absorption Coefficients

Polar Response - Traditional and Enhanced

Traditional - Displays the level of reflection at each angle along the horizontal or vertical axis at a specific frequency. Level follows a polar grid in dB - marked from 0 to -40 dB.

Enhanced - Displays the level of reflection at each angle along the horizontal or vertical axis, including adjacent samples, at a specific frequency. Level follows the same color key from above. (0 to -40 dB.)

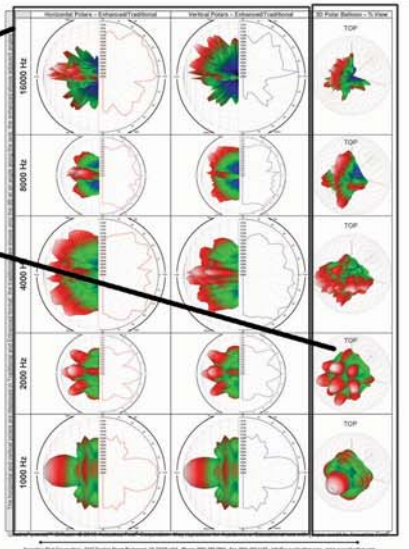
3D Polar Balloon



This is how a 2000 Hz signal will reflect off of a QuadraPyramid™.

If we could see acoustic energy, this is what it might look like.

Displays full hemispheric acoustic level (dB) response in front of the surface, at specific frequencies. These use 1/3 octave smoothing.




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and
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