Behrens and Associates, Inc.

Environmental Noise Control

Acoustical Beamforming Unit

- A fast, accurate sound visualization and measurement tool.
- Allows individual sound components of moving objects to be assessed in detail.
- Sound mapping using color coding to grade noise contributions.
- Automatic synchronization of sound measurement with the captured imagery.
- High resolution mapping of:
  - Sound intensity
  - Absorption
  - Reflection

Contact us now for more information

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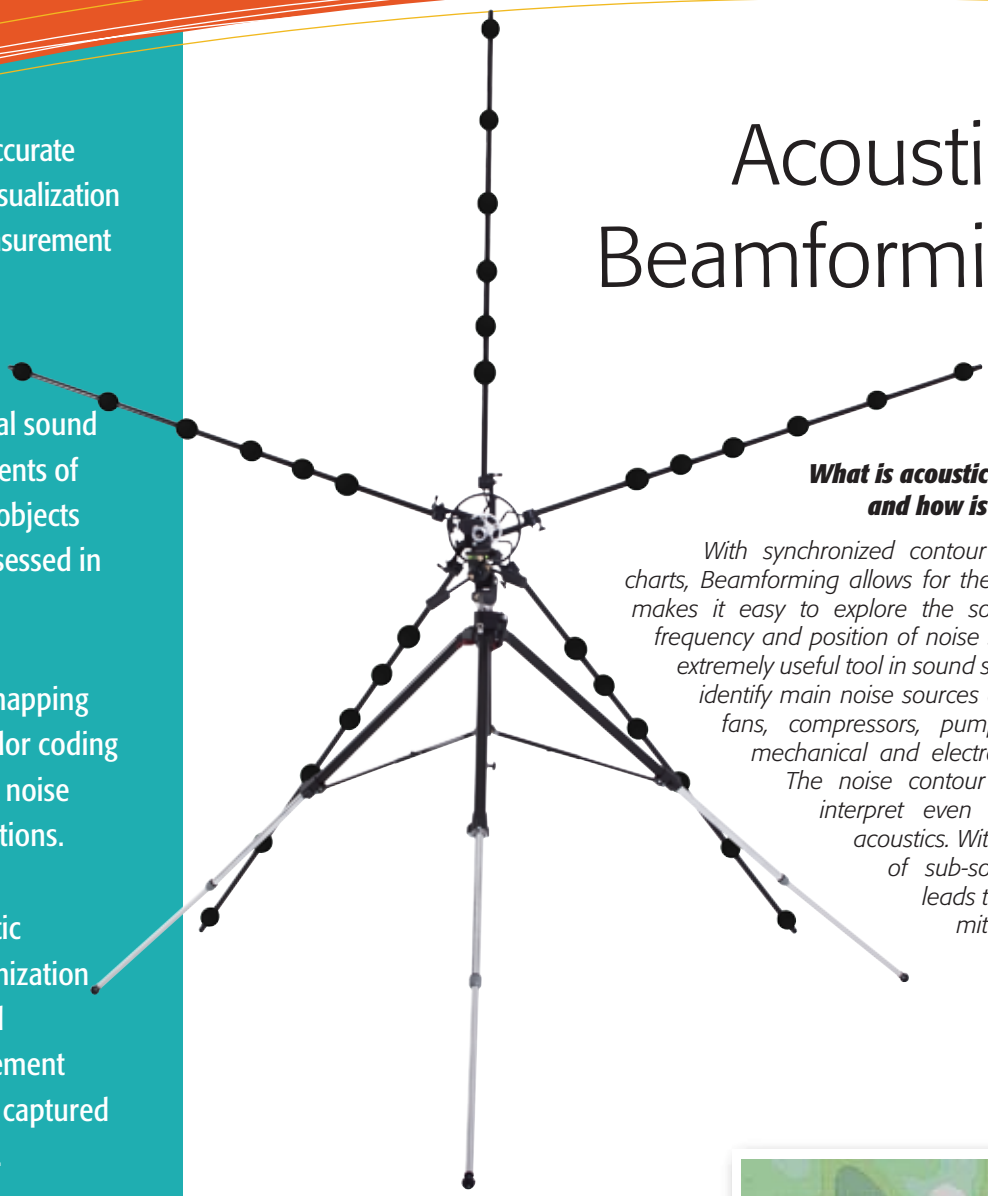
(800) 679 8633

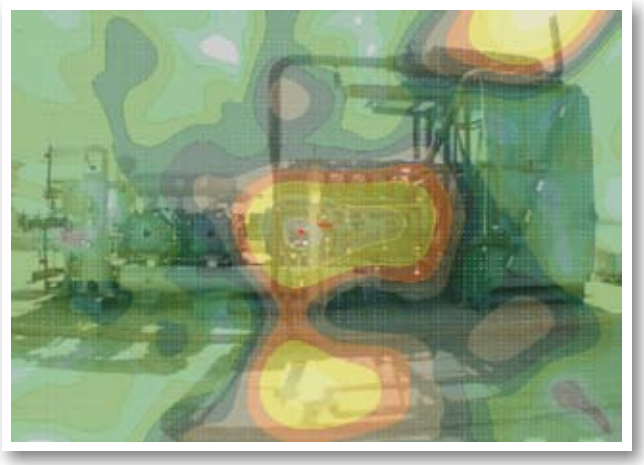


What is acoustic Beamforming and how is it useful?

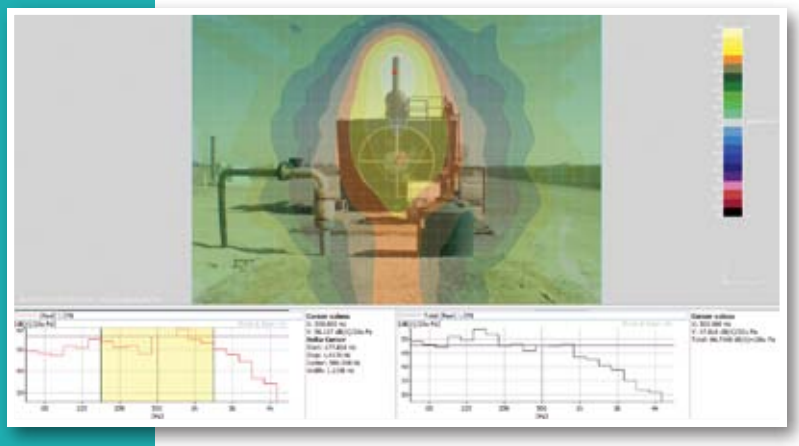
With synchronized contour result maps and spectral charts, Beamforming allows for the visualization of sound and makes it easy to explore the source behavior in terms of frequency and position of noise sources. Beamforming is an extremely useful tool in sound source localization, helping to identify main noise sources and sub-sources of engines, fans, compressors, pump components and other mechanical and electromechanical noise sources. The noise contour result maps are easy to interpret even without a background in acoustics. With the contour maps, ranking of sub-sources becomes easy and leads to efficient and focused noise mitigation designs.

How does acoustic Beamforming work?

Acoustic Beamforming is a modern sound source localization technique used to identify the source of sound waves passing over a microphone array. The microphone array is positioned in the far field where sound waves hitting the array are planar waves. As the sound wave passes over the array, a processor uses the difference in arrival times at the fixed microphone positions to determine the direction, frequency content and intensity of the sound wave.



Simultaneously processing all the signals measured by the array allows for the determination of the sound level and frequency content at any point in front of the array. The results from a single-shot measurement can then be displayed as a colorful noise level contour map superimposed over an image taken from a camera centered in the array allowing the user to visualize the sound propagation.

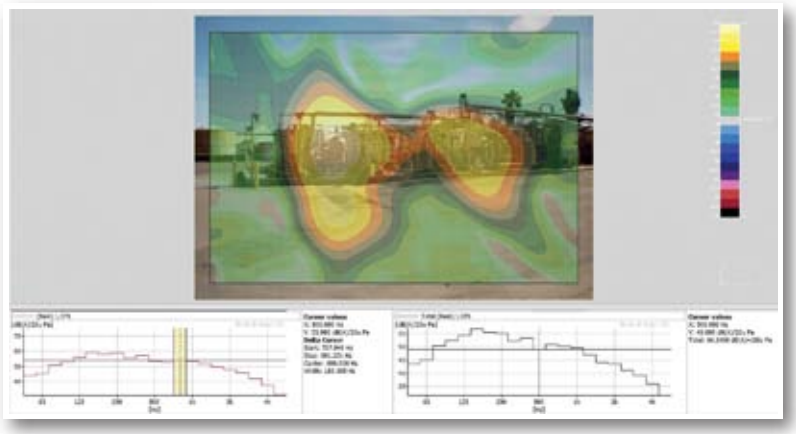


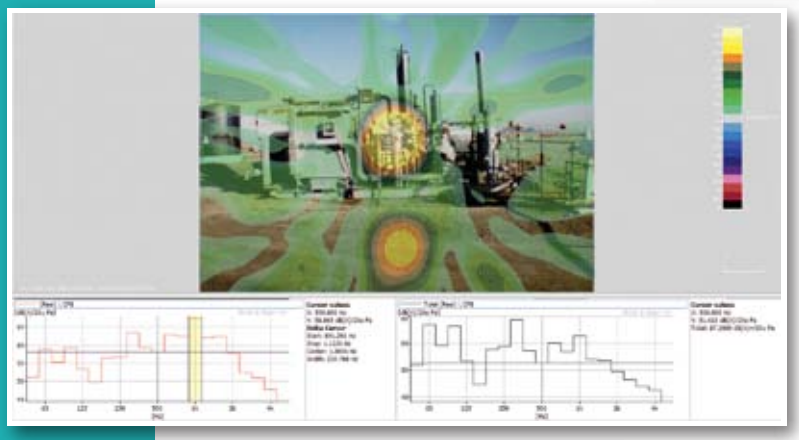
Waukesha Compressor Fan View

Mid Frequencies 180 Hz - 1.4 KHz

West Unit Gas Plant Compressor

and Motor Sources 800 Hz





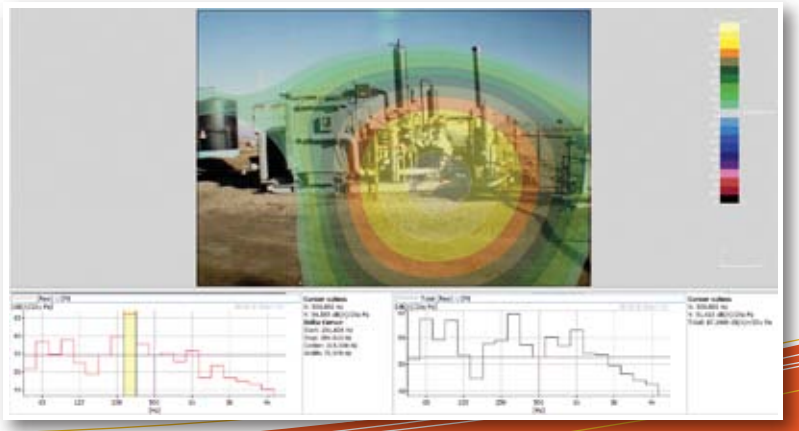
Cummins Compressor Side View

Engine Isolation 1 KHz

Gas Compressor Package

Side View with Compressor

Isolation 315 Hz



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