

The Sound's The Thing



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Did you ever need to put sound into just one small area of an exhibit or display? Ever struggle to make an environment more effective, engaging and quieter by eliminating overlapping sounds? Enter the Audio Spotlight!

The Audio Spotlight, manufactured by HoloSonics, Watertown, MA, is a relatively new product developed at MIT that allows the user to *beam* sound into a very small area of an exhibit or display. The beam from an Audio Spotlight is just 18" to 24" across and can be projected several hundred feet. Until approximately five years ago, directional speakers, such as sound dome products and steered arrays, had been used to create zones of sound. However, the sound projected from a sound dome or array is regular sound, shaped to remain in a smaller area. Once this standard sound leaves the confines of the dome, it immediately wants to spread out to fill up all the space surrounding the dome. The sound from these more widely known products is about 60% directional, at most.

The ultra sound beam from an Audio Spotlight, however, wants to remain in a narrow beam, more akin to the beam of a light emanating from a spotlight. As a result, the Audio Spotlight enables the exhibit designer and builder to add sounds into very small spaces and create narration or musical environments where previously this had not been practical. This beam of sound is somewhere between 90 to 95% directional.

Advantages Of The Audio Spotlight

The purpose of using the Audio Spotlight is to create atmospheres

of sound within an exhibit without the use of sound partitioning. The Audio Spotlight keeps an exhibit space quieter by eliminating overlapping areas of sound that make an exhibit louder, annoying or confusing.

Normally, sounds add up within a space increasing the ambient noise level within that space. If 20 people in an exhibit are talking loudly, the exhibit gets louder. Every sound within the exhibit spreads out to fill it and the surrounding space. Thus, in an area like a trade show, where there are many people interacting, live presentations and music playing in the background, the environment gets loud, even annoying, very quickly. All of the sounds add up to create a louder environment or higher sound level. Since the sounds created by the Audio Spotlight are not heard outside the beam, many Audio Spotlights can be used in the same exhibit space without making that exhibit space any louder.

System Components

The Audio Spotlight consists of a transducer (speaker), amplifier and coax cable connecting the two. Standard sound devices are used to create the source signal, such as DVD, CD or computer. The short wavelengths contained in the ultrasound beams make the beam perform more like one of light than sound, so the sound projects straight from the transducer without spreading out to fill the room. To



produce this beam of sound, the whole system must be used (amplifier, coax cable and transducer). The beam of sound is actually so focused that it will reflect off of a hard surface, like a beam of light coming from a mirror.

Real Life Applications

Several companies have integrated this technology into their trade show exhibits during the last four years. Recently, Master Brands, a cabinet maker from Jasper, IN, added this technology to improve their presentation at the Homebuilder's Show in Las Vegas. Master Brands wanted to drive home their company motto and make their exhibit more user-friendly by adding narration about different product lines to various areas of their display. With the help of their exhibit builder, Czarnowski, the distributors of the Audio Spotlight, Exhibit & Display Consultants (www.exhibitconsultants.com) and Muse Presentation Technologies, Santa Ana, CA (www.museprestech.com), twelve zones of sound were created in various areas within the exhibit.

(Note: Several automobile and electronics manufacturers around the world are currently experimenting with the Audio Spotlight. Imagine everyone being able to listen to a different radio station in each seat of the car during your next outing with the family or being able to watch TV late at night next to your spouse -- without them hearing the audio part of the broadcast!)

In the Master Brands' booth, twelve Audio Spotlight transducers were mounted discreetly on poles 14' above the ground. For the maximum volume (sound level) trade show use demands, it is recommended that the Audio Spotlight transducer be mounted no more than three meters from the average listener's ears, or 15' in the air. The mounting hardware is constructed with a ball joint so the Audio Spotlights are easily aimed wherever the sound is desired.

The transducer is 1/2" thick and comes in two standard sizes -- 18" round or 24" hexagonal. The cover of the unit is produced using sublimation printable Lycra. For an additional fee, this Lycra cover can be printed to look like anything that can be taken with a digital camera -- making integration into an existing display or trade show environment even easier. The Lycra cover can be produced with an elastic

edge so it is easily interchangeable. The transducer emits an ultrasound beam; there is no light involved, so there is no way to know you are stepping into the beam of sound, unless the exhibit builder integrates a sign or signal into the environment.

The transducers are driven by a small ultrasound amplifier 6.75" W



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x 2.28" H x 11" D. The amplifier receives the input signal from a standard audio source such as a computer, CD player or DVD. The amplifier can currently push the sound signal through a cable 110' long without any in-line amplification. Developments are currently being tested which will greatly extend that distance. The amplifier runs on standard 110V or 220V power and is very easily adaptable to European or Asian versions of electrical power.

Master Brands used audio tracks which consisted of 30-second narrative loops. However, the sound track can include either narration or music or a combination of both. Professional production of the sound track is recommended.

The Audio Spotlight does not currently reproduce bass below 350 Hz well. As a result, the audio track is equalized and mixed to eliminate most of these tones. To create a more dynamic acoustic environment, the low tones can be added back into the space with a subwoofer. Of course, the sounds from a subwoofer will not be directional but, luckily, bass heard by itself is very non-descript and, thus, non-obtrusive. We have found that subwoofers are a non-distracting way to add the low tones back into the space without unnecessarily increasing the sound level or potential for audio-related distraction.

Next time you would like to add sound into one particular part of an exhibit, remember the Audio Spotlight. There is already a rental fleet available for trade show use and special events! *eb*



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