



AmericanTechnology™
CORPORATION

Shaping the future of sound®



Directed Audio Sound System

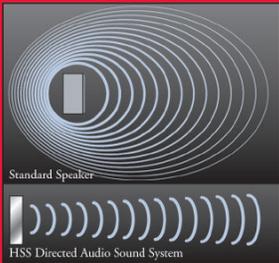
THE ULTIMATE DIRECTIONAL INFORMATION DELIVERY PLATFORM

HSS® TECHNOLOGY

A revolutionary new concept in sound reproduction—a paradigm shift in technology application. HyperSonic Sound technology projects a column of modulated ultrasonic frequencies into the air. These ultrasonic frequencies are inaudible by themselves. However, the interaction of the air and modulated ultrasonic frequencies creates audible sounds that can be heard along a column. This audible acoustical sound wave is caused when the air down-converts the ultrasonic frequencies to the lower frequency spectrum that humans can hear. Since the audible sound is produced inside the column of ultrasonic frequencies (which is highly directional), an important by-product of this is that the audible sound can be tightly focused in any direction within the listening environment. This provides outstanding flexibility in placing the sound exactly where you want it and substantially eliminating sound in all other areas. By eliminating the bulky magnets and moving coil found in a conventional speaker, the HSS system has other advantages. The system is small and lightweight; its thin lines make it easy to mount. Positioning is precise, with no bulky housing, cabinet, vibration, or back wave emissions to consider.

The directionality of the HSS system is unsurpassed, with the added benefit of long projection distances and retention of intelligibility.

Getting sound right where it is wanted eliminates having to use high sound pressure levels to get sound to “carry” to distant points.



ATC TECHNOLOGY

American Technology Corporation shapes the future of sound with pioneering sound reproduction technologies. With over 140 U.S. and foreign patents and patent filings to date, ATC’s technology portfolio includes the award-winning HSS® (HyperSonic® Sound Technology); NeoPlanar®; PureBass® Sub-Woofer Technology; LRAD™ (Long Range Acoustic Device) Technology.

HyperSonic Sound® (HSS®) is a pioneering sound-generation technology that broadcasts your message directly to your intended audience. In contrast to conventional loudspeakers, HSS technology uses a directional ultrasonic column to produce sound exactly where you want it. Sound does not spread to the sides or rear of an HSS unit, eliminating the problem of uncomfortable and unwanted noise pollution produced by conventional speakers. Sound is directed only where it is intended to go.

Visualize two people standing four feet apart at an art exhibit. One patron listens to a biography of a sculpture artist, while the other contemplates a painting in complete silence! HSS is like handing someone a set of virtual headphones.

A Myriad of Applications

By focusing sound in a tight column, HSS allows you to restrict sound to a specific area without imposing on nearby activities. For example: A series of directory kiosks in a mall require individual audio for each display. An HSS speaker focused on the area in front of each display allows only directory users to hear the corresponding audio. The HSS Directional Audio System



Direct Mode - Trade Show

can operate in Direct Mode, a clear line of approach from the HSS unit to the target listener, and in Virtual Mode, projecting sound onto a sign, display or other object creating a Virtual Speaker.

Other uses for HSS technology include closely controlled communications for point-of-sale, advertising, or language-dependent messaging. HSS can be used in convalescent facilities, nursing stations in hospitals, or anywhere noise abatement requirements preclude general broadcast address, but communications is required.

Imagine:

- Introducing a new product and telling customers how to use it at the store display with the audio message heard only by those standing in front of the display.
- Museums, amusement parks, theme parks, or zoos with display-point audio that provides directions or a narrative about displays or exhibits without the need for conventional headphones.
- Providing a section for the hearing impaired at public assemblies, in churches, and in schools where sound can be enhanced without disruption to other attendees.
- Computer operators in an office of cubicles with HSS units placed overhead directing sound at each individual with no disturbance to coworkers.

Since the HSS directed audio system delivers sound precisely, less volume is necessary to project sound where it is needed. An audio signal is sent to an electronic signal processor circuit where equalization, dynamic range control, distortion control, and precise modulation are performed to produce a composite ultrasonic wave form. The patent pending ModAmp™ technology is used to produce the compact and light-weight Modulation/Amplifier portions of HSS. This amplified ultrasonic signal is sent to the emitter that produces a column of ultrasonic sound that is subsequently converted to highly directional audible sound within the air column. Since ultrasound is highly directional, the audio sound placement is precise. Directional sound is pointed to the target listener(s) or reflected off an object to create a Virtual Speaker that is some distance from the HSS unit.

HSS features:

- Fully self-contained digital signal processing, amplification, and emitter device(s)
- Analog audio input for audio playback from an external, line-level, audio source
- Ability to focus sound only where you want it
- Ultrasonic emitter devices that are thin and flat and can be imbedded in other display fixtures

ATC's manufacturing partner utilizes worldwide capabilities allowing for fulfillment of large bulk orders and small sized orders through proven technology, supply chain management, and quality product configuration.

Imagine:

- Display booths at trade shows that direct sound only to those in or in front of the booth, keeping noise levels to a minimum.
- Projecting the audio from an audio/video conference, in four different languages from a single central device, reaching the intended parties without headphones.
- Safety warnings that penetrate general noise in heavy equipment staging areas, rental sites, or repair yards so that it can be heard by those in risk areas.
- Signaling, alerting, and informing specific individuals in a grocery aisle, waiting room, or lobby.
- Use of the HSS unit to add audio to an ATM with only the customers actually at the ATM able to hear the message.



Direct Mode - Museum

Utilize HSS As a Virtual Speaker



Virtual Mode - Retail

HSS can transform signs, placards, and surfaces into Virtual Speakers. Virtual Mode applications allow units to be placed without cabinet or hardware at the desired sound location. By projecting sound with an HSS unit, a simple display sign can act as a speaker without wiring or changing the sign's appearance. You can project HSS sound to specific endcaps or aisle displays or send sound across the room, without uncomfortable and unwanted volume from loudspeakers. HSS can turn a wall into an information sound center by adding sound to coupon panels and directional signage to increase interest.

Superior Sound Control

The unique technical characteristics of HSS offer superior control of sound. HSS creates new opportunities for designers to implement and use sound as never before. Architects now have the ability to integrate sound into designs with exciting control of placement. With the HSS Virtual Mode capability, sound can be added without having to place a loudspeaker where the sound is needed. Audio engineers will find that HSS is applicable in any situation where it is desirable to limit the ability to hear sound to a defined space. Since HSS delivers sound precisely, less volume is necessary to project sound where it is needed; HSS does not inflict excessive sound pressure at one point to carry the sound to the desired place. HSS can create virtual loudspeakers, so that sound appears to be coming from points where it would be impractical or impossible to place a loudspeaker. **Hypersonic Sound is a paradigm shift in sound production based on solid principles of physics.**