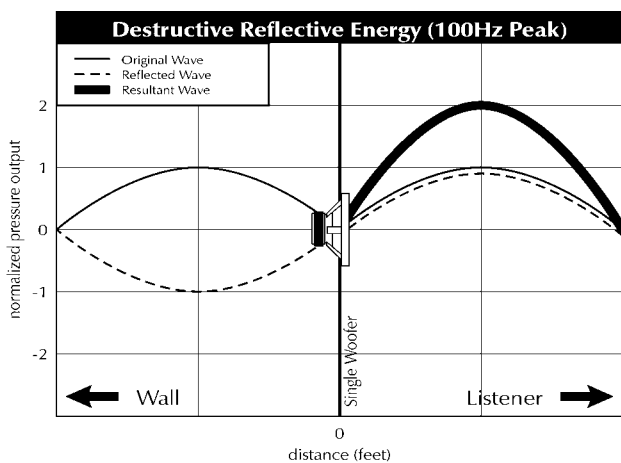
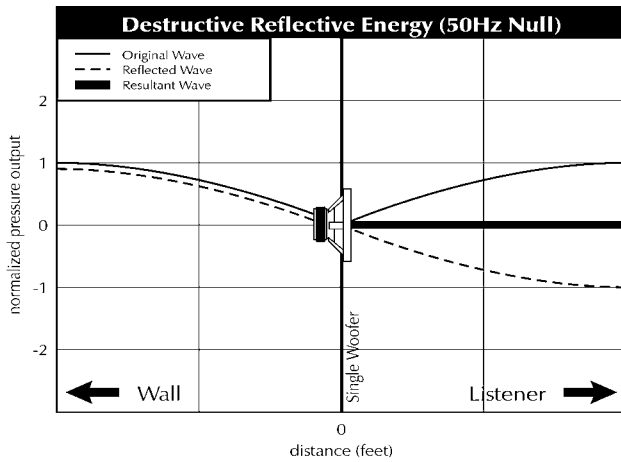


MARTIN LOGAN TECHNOLOGY

ForceForward™

As long as recorded music has been enjoyed in the home, loudspeaker designers have faced the challenge of room interactions produced by bass frequencies which can color and alter the character of the music. These colorations are a natural occurrence of sound wave reflection and motion through any listening room.

The low frequencies which are reflected from the front wall and back to the listening position, add to or subtract from the original audio material and chaotically interact throughout the listening environment. Typically, this produces a diminished signal—called a null—at about 50Hz and an enhanced signal—a peak—at around 100Hz.



These fundamental frequencies produce similar nulls and peaks at their respective harmonics throughout the audio spectrum, making the flat frequency response of your system anything but. This is one reason why the same recording produces a distinctly different character when played in different listening rooms and what makes some notes sound boomy while others seem thin.

In a typical listening room, the main speakers are placed at varying distances from the front wall—usually from 3 to 7 feet. The idea is to create the most perfect balance between the stereo image, staging and bass response. Often, even your best efforts produce a compromise with no perfect solution. For instance, moving your speakers into the room increases the time required for the reflected bass to reach your listening position with the benefit of improving bass response. However, many times this can also shrink the sound stage producing an image that lacks depth.

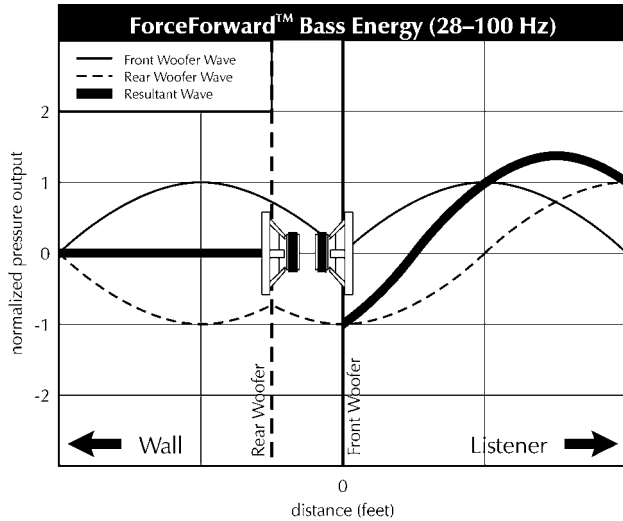
Audiophiles have known these issues all along. In their pursuit of absolute sonic purity, they have gone to great measures to create the best possible compromise by applying various room conditioning elements—such as tube and corner traps—and by repeatedly tweaking both the speaker and listening positions to get the best image vs. bass response. Though these procedures can be effective, they require a very discerning ear, some technical know-how, and the time and patience to experiment—and still they don't always completely resolve the problem. Furthermore, they can have a considerable impact on the listening room look, your bank account, and they take you away from the main reason you invested in your home system in the first place—enjoyment!

MartinLogan's ForceForward is changing how audiophiles and home theater enthusiasts enjoy home entertainment. Incorporated into our Prodigy speaker, it makes room setup easier and more flexible than ever while providing a more uniform sound field over a much larger listening area without the tedious hassles and tweaking.

MartinLogan's ForceForward uses a combination of proprietary technologies to reduce and even eliminate these anomalies throughout the listening room. Our engineering group pioneered a calibrated woofer system integrated with a tightly controlled network to dramatically reduce this

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problem by directing the low frequency energy only in the forward direction—ForceForward.

The diagram above shows the path length between the front and rear woofer and the resultant net room bass. By shifting the energy below 100 Hz in time (phase) we condition the distance relationship between the two drivers in such a way that the energy arrives at a sum in the front, yet results in a null in the back. This causes a near complete absence of energy between the rear wall and the speaker and a coherent wave front directed forward, resulting in easier room placement and more uniform bass throughout the room.

The best part is that you can place your MartinLogan's in a much wider range of configurations—closer to the front wall for instance—and still enjoy the same incomparable bass power, staging, and fidelity.

For more information, please visit www.martinlogan.com.

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