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Subject: Re: Imaging with Pi Speakers

Posted by [Wayne Parham](#) on Tue, 27 Nov 2007 02:43:31 GMT

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I've always found speakers that project a nearly uniform radiation pattern sound most natural. The thing is, the opposite case - speakers with very non-uniform radiation pattern - create a pinpoint "pocket" where sound is best. The trick is to carefully place them in the room to create a sort of "virtual localization" of individual sounds. Reflected energies from such a speaker are non-uniform, so different sounds are reflected from different places in the room with various levels of intensity. This creates a sort of virtual artificial soundstage, with instruments seeming to come from different places, formed by the interaction of multiple reflection points. Owners of speakers like these usually tend to want to move them far away from room boundaries and are often very concerned with room treatments, all in an attempt to control the reflected energies, in effect, taming the room to create an artificial soundstage. When you have directional speakers that create a uniform reverberent field, you get much better coverage throughout the room. The more directional the speaker, and the more uniform its directivity, the less influence the room has on the overall sound, at least above the midrange band. Localization of sounds is made possible solely by the position of each speaker and by the relative loudness of each one. Any reflected energies will have the same tonal character as direct energies. Early reflections are reduced because the horn directs sound into the room and away from nearby boundaries. This leaves mostly late reflections from opposing walls which are largely ignored subconsciously. Directional speakers that create a uniform reverberent field make a much more transparent veil of sound.

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