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Subject: Positioning and subs

Posted by [Wayne Parham](#) on Wed, 07 Jan 2009 01:17:33 GMT

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I like to use a small riser that angles the speakers back about 5°. Not much, just enough to tilt the forward axis up slightly, to put the pattern at ear level a few feet back. This keeps the midwoofers low enough that there is no floor bounce notch. This is a placement that almost always works in just about any room.

Remember that the goal of placement for a speaker like this isn't to point the speaker directly at the listener but rather to make the pattern cover the listening area. The spectral balance is quite good within its 90° x 40° pattern.

Imaging, placement and orientation

as floor standers on little angled risers, the tweeters are still about two feet up, which is very nearly ear level when seated. However, it is sometimes desirable to have the speakers a little higher than that. Obstruction from furniture or integration with screens mounted high on the wall make it attractive to elevate the speakers off the ground.

Another configuration that works well is to put the speakers on 12" to 18" stands, used in conjunction with flanking subs blended with the mains. The idea is to low-pass the subs a little bit high, overlapping them with the mains to mitigate self-interference from the reflections off the nearest boundaries, the floor and the wall behind the speakers. It's really better to add subs anyway as they'll smooth room modes as well as those those self-interference notches.

The idea is to position the subs a few feet away from the mains, usually at a different position in all three planes. The subs provide extension to 20Hz and they overlap with the mains, filling in any notches from reflections and averaging room modes. The low-pass frequency can be adjusted to provide the desired range of smoothing, because the optimum frequency is largely determined by the position and distance to the mains. Low-pass is typically set between 90Hz and 120Hz, but sometimes as high as 150Hz. Best results are obtained with a relatively gentle rolloff slope, smoothing the transition from blended multiple sources to a single point source above the Schroeder frequency.

Multi-sub configurations suggest building the speakers and trying a few placements in your room using books, milk crates or other temporary stands. This will let you find the positions and orientations that work best in your room. Once you've found it, have the appropriate size stands made. My experience has been that the little angled risers almost always work well, and if you use subs, you can get them up a little higher than that. But using books of different heights, you can angle the speakers and set their levels for trial runs and find the optimum placements before committing to a riser or stand type.