
Subject: Boundary conditions and room interactions
Posted by [Wayne Parham](#) on Thu, 17 Jul 2003 16:45:39 GMT
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I'll let those more qualified at woodworking respond to those questions. But as for the optimum distance between woofer and floor, what you have is essentially a boundary condition that also acts as a reflector. The closer to the floor the source is, the higher frequency before the floor acts as a reflector. It will act more as a pure ground plane, or half-space and there will be less of a path length difference between reflected and direct energies. There is often a notch that forms as a result of self-interference from the floor reflection. But since you also have other reflective surfaces in your listening room, this path length issue presents itself from many other things besides just the floor. This is also the reason for the effects of baffle dimensions. The larger the baffle is, the lower the frequency where it will act as half-space. Of course, the baffle might rest on the floor or against the wall and form a more constrained space such as quarter-space or eighth-space. But the point is that even if the loudspeaker cabinet is suspended in free-space, above a certain frequency range, the baffle itself forms a half-space condition for the sound radiator. For more information on boundary conditions and room interactions, check out Augspurger's JBL Sound System Design Reference Manual.