over the woofer's entire range.On casual inspection, one would expect a self-cancelling reflection

first designed it, I intended to always crossover below that frequency or at least near it, using the notch to help rolloff the woofer.As it happens, there is no well-defined self-cancelling reflection notch. It does not happen because of the numerous path lengths from all the possible wavefront

from point source to multi-path dense interference, which reduces output slightly but at a fairly uniform amplitude.In fact, I experimented for a few years with a two-way design because of this property. It works pretty well, to be honest, better than you would expect. But I prefer to

very well, because having two overlapping sound sources stacked vertically at low midrange frequencies helps prevent floor bounce from either one. They combine coherently on the forward axis and off-axis along the horizontal plane, and in the vertical plane the two interact with each other and with their ground reflections to act like four sound sources.Wide overlap works best, because it allows the woofer and midrange to blend with each other. As frequency rises, past the

happens to be pretty close to the Schroeder frequency, where room modes become so closely spaced as to become indistinguishable. Above that frequency, sound acts more as a reverberent field and less as discrete room modes.