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Subject: Re: Effects of a low pass notch filter on BR versus TL: speculations

Posted by [Wayne Parham](#) on Wed, 24 Mar 2004 21:04:56 GMT

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The fundamental tuning device of a bass-reflex cabinet is a Helmholtz resonator, which has one predominant frequency. A transmission line has a primary resonant frequency, but it also has multiple harmonics above that. So I would expect a transmission line to have more resonances than a bass-reflex cabinet, with the TL acting sort of like a horn. In both transmission line and bass-reflex loudspeakers, the designer generally intends for midrange energies entering the cabinet to be attenuated so that they are not present. Low-pass filters formed by acoustic insulation and by woofer crossover components both serve to reduce energies that energize unwanted higher-frequency resonances. But for what energies are within the cabinet, the major issues are caused by standing waves, which is the property transmission lines are based upon. You may be interested in the paper called Acoustic Filters, Waveguides and Transmission Lines, by Daniel Russell.

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