Subject: Re: Experiment, Insights pls?
Posted by Wayne Parham on Fri, 22 Feb 2008 17:53:40 GMT
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My experience is either you have Helmholtz resonation or you have standing wave resonation, or sometimes a combination of the two. Quarter-wave pipes act like Helmholtz resonators in that they provide narrow bandwidth resonant phenomenon. They are different in that a Helmholtz resonator works at one frequency where a tuned pipe works at the fundamental and harmonics. Horns are expanding pipes that act like resonators over a wider range, up to two or sometimes even three octaves. But they require a lot more space.The way this relates to what you're seeing is my guess it is a narrow band resonance, probably Helmholtz. That makes it pretty easy to get your arms around its behavior. If you measure the impedance to find the fl and fh frequencies and you know the electro-mechanical specs of the speaker, you can know how the system will act, at least at low power levels. That will let you do some modeling of its behavior when the resonant frequency is varied. You can also measure amplitude response and phase, but you'll really need to do it outdoors to capture the behavior of the speaker without having it swamped from influence of the room.