Subject: Re: Designing a TL
Posted by Wayne Parham on Wed, 01 Jun 2005 22:56:15 GMT
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As I see it, pipe mode resonance and Helmholtz resonance are not mutually exclusive. It's not an either/or proposition and I don't think either is necessarily better or worse. However, I do agree that Helmholtz resonance does not have harmonic modes. Since cabinet dimensons aren't used to set the Helmholtz frequency, you can make a cabinet with dimensions that are unrelated to the Helmholtz frequency.There is nothing magical about either method. However, pipe tuning requires standing wave modes, so equally spaced harmonics are assured. You can position things to get around them, but they are a necessary consequence of the design.I also want to point out that cabinets that are physically tall aren't necessarily configured as transmission lines. There are standing waves modes inside any chamber, but if the primary tuning feature is Helmholtz resonance, then the speaker is configured as a bass-reflex system. If the primary tuning feature is length related, then it is a tuned pipe. Unwanted standing wave modes should be suppressed in any loudspeaker cabinet, and the same techniques that are used to suppress harmonics in a tuned pipe can be used to supress standing waves in bass-reflex cabinet, or any other, for that matter.