Subject: Re: Designing a TL
Posted by Bob Brines on Wed, 01 Jun 2005 18:50:09 GMT
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Were that is was so simple!The current trend in speaker aesthetics is the tower speaker, driver at ear level, baffle as narrow as possible and still hold the driver. So.... We use one of the calc programs, WinISD, Unibox, whatever, design a BR, then adjust the dimensions to fit the form factor. Voila, a tower BR. But wait! The tuning is all wrong. Got to shorten the port by half. And the mid-bass is lumpy. Got to add stuffing.Mother Nature is a b...., and she makes the rules. Once the ratio of cross-sectional area to length reaches a certain number, and I don't know what that is, the Helmholtz resonance breaks down and quarter-wave modes set in. I do know that the normal range of dimensions for tower BR's guarantees that they are not BR's.Here's my Fostex FE167E BR:24 liters, tuned to 60 Hz.Here's my Fostex FE167E quarter-wave pipe:53 liters, tuned to 40 Hz. Note that both speakers have nearly the same cross-section and the baffle width is identicalThat's probably about right for an EBS BR, but to have the box operate as a helmhotz resonator, it would have to have somethinglike golden ratio dimensions. This would make it pretty chunky in decor terms, and it would have to be stand mounted to get it to ear level. Not real good WAF.Final point. MLTL's seem to control the driver better below cut-off. I don't know why that happens, but it does. This means a lot less doppler distortion under heavy bass. I believe that this is why the bass of MLTL's sounds so good. At least with pipes the size and cut-off of my stuff.Bob