Subject: Re: Designing a TL
Posted by Martin on Wed, 01 Jun 2005 23:37:40 GMT
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Hi Wayne,The MathCad worksheets can calculate the response of either a Helmholtz or a 1D pipe resonance. The lumped parameter freeware programs most people use only calculate Helmholtz resonance so they never predict standing waves. Classic bass reflex enclosures will have standing waves that effect the SPL response, see Figure 6 in my ML TQWT article. People assume that if the SPL plot shows a flat response it must be flat, unfortunately this is not the case. One of the benefits of using the current versions of the MathCad worksheets is that you also model standing waves in one of the three enclosure directions. If you run the worksheets three times, you can get a hint about the impact of the standing waves in a classic bass reflex design. I have a 3D version of the worksheet but it is not completely debugged and is sitting on the far back burner.One of the other great myths of bass reflex design is that you only line the walls and place nothing in the center of the enclosure. This will produce almost the worst case standing wave situation, the worst is totally a empty box. None of the freeware lumped parameter models will give you a hint at the potential for standing waves in the bass reflex enclosure.If you are designing a tall bass reflex enclosure then I recommend using my Ported Box worksheet which will include any standing waves in the long direction and allow you to optimize the placement of both the driver and the port along the tall dimension. Using the freeware lumped parameter models will only tell part of the story, I hate surprise endings.Martin