Subject: Re: Designing a TL
Posted by Bob Brines on Thu, 02 Jun 2005 13:45:53 GMT
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theoretically, but from a practical point, is is sort of a red herring. I agree that will exist in a quarter-wave pipe, but it will most likely be overwhelmed by the quarter-wave harmonics. Also, as Martin points out, the math takes care of the issue anyway and the designer need not worry about it.Now, the point I was REALY making, and apparantly not very well, is that once the quarter-wave genii is let out of the bottle, it must be delt with. You CANNOT build a tall, thin BR without concern for quarter-wave modes.This is the modeled output of a 53 liter cubic box with a 3"x4" port, the same as on the quarter-wave pipe to follow -- a pure helmholtz resonator.The peak at 900 is the half-wave resonance between the walls of the box.This is the modeled output of the 53 liter MLTL with the same port. The driver and port are at optimum positions.Just in case you think that the model is blowing smoke, here is the actual nearfield output of the MLTL.If you do not model your design, then the only way to know if quarter-wave modes exist is to do a nearfield measurement of the port. The answer will be obvious.----------Another point you raise is that you can mix helmholtz resonance and quarter-wave modes in the same design. Yes you can, a few years back, there were a number of very complex designs with multiple pipes and resonators, all designed to tame quarter-wave resonances in essentially conventional TL's. Unfortunately, these were complex solutions to a simple problem. Proper pipe geometry and driver/port placement does the job in a simple, straight pipe.One more graph. This is the outdoor, 1 meter farfield, no splice output of my 53 liter MLTL.The dip at 150 Hz is primarily floor bounce.See, it works! Bob