Subject: Re: How much do the harmonics matter?
Posted by Bob Brines on Fri, 16 Dec 2005 14:13:31 GMT
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Perhaps this will make things more obvious. This is a plot of driver and port response on a linear X-axis. This is a straight MLTL.The system is tuned to 40 Hz, which is the first spike. The next spike is the 3rd harmonic. Note that is is up at about 180 Hz, not the expected 120 Hz. The 5th harmonic is missing because the driver is placed at the first node of this harmonic.There is a minor spike in the port response, but it is 30dB down. The 7th and 9th harmonics are present, but the remainder of the series below 1000 Hz is suppressed by the port placement.Now, why is the harmonic series shifted to the right? I suspect that there is interaction between the cavity resonance and the pipe resonance, but I have never been able to prove that. I would like to see some double humping at the tuning point, but I have never seen it. Someone with more mat/physics horsepower than I might discover something.Bob