Subject: Re: General evaluation of midrange drivers
Posted by Wayne Parham on Sat, 18 Apr 2009 15:25:29 GMT
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If you entered the electro-mechanical parameters of the driver(s) and the specifications/dimensions of the horn flare, I would trust that Hornresp is giving you an accurate prediction of SPL and of amplitude response, at least at the lower end of the curve. You may get more HF from the horn than predicted and it may have some peaks and valleys up high that aren't shown in the prediction due to cone breakup.As to your other questions, when I said electrical damping is almost always an order of magnitude greater than mechanical damping, what I am trying to say is the damping described as Qes is much greater than Qms, having a lower number. The mechanical damping is usually almost nil because the suspension is designed to move freely rather than to provide resistance to cone motion. That's what you want, actually. So all the damping you'll get is acoustic (from the loudspeaker cabinet) and electrical (from the woofer circuit, through the voice coil and amplifier output).About the forces that cause bending of the cone at frequencies above the pistonic range, these are pure physics, related to mechanical stress/strain and resonance. The cone may be very strong, but as force is applied in the middle and the frequency rises, there comes a point where the cone itself goes into resonance. This is like the now famous Tacoma Narrows Bridge. In 1940 it bended and twisted enough to tear itself apart from aeroelastic flutter, a resonant vibration caused by forces from wind acting on the structure.Thiele/Small parameters and the associated electromechanical parameters only describe the motion of the cone as a rigid piston, and they do not say anything about cone breakup. Cone flex behavior is determined by the cone material, shape and size and by the position where drive force is applied and where it is suspended by the spider and surround.