Subject: Woofer compliance sample variation
Posted by Paul C. on Wed, 16 Nov 2005 22:00:13 GMT
View Forum Message <> Reply to Message

I had read posts where fellows said they would measure their particular drivers and use those figures to try to fine tune their speakers/ports.I remembered reading an AES paper by Pat Snyder (with Speakerlab at that time). It was presented at AES convention in Nov of '77, Preprint No. 1307, "Simple Formulas and Graphs for Design of Vented Loudspeaker Systems".He goes though the standard definition of terms, and T-S stuff, and in the end, gives a set of low end response curves. We now generate these curves easily with various programs on the market, so I won't go into all of that. I am sure these programs use these formulas.BUT what was really intersting was an observation by Pat, and he showed this mathematically, that driver compliance, Vas, had very little to do with the low end response."Keele observed that drive compliance Vas has relatively little effect on system frequency response. (Ref 3) I also know that of the woofer physical parameters--compliance, cone mass, magnet strength, and so on--compliance is the one that varies the most in production."Pat goes on to combine some formulas and shows that Q and resonant frequency both contain the Vas, and that when Vas varies, so do Q and resonant frequency. He shows how compliance factors out of the equations. I would love to reproduce all of that here, but don't know how to make the various symbols required. Anyway, anyone who wants a pdf of this portion of the paper need only email me.What he shows happens is that when Vas is off, these other parameters are off in such a way that the completed speaker still functions as designed.I had read on another forum where a fellow did various speaker measurements before and after "break in". Presumably after "break in" a speaker's compliance changes, it becomes loosened up, so to speak. Yet when you put the real woofer in a real box, and measured response before and after "break in" no difference could be observed.So, I think the lesson is, don't get too upset if your actual measurements vary from the manufacturers' specs. Go on and design your box and vent, put the speaker together, and enjoy the music.