Subject: Re: L-pad on LF driver
Posted by Tom A. on Mon, 08 Apr 2002 22:23:06 GMT
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Let me layout my project to fill in some of the gaps that I left in my last post. The midrange and tweeters are as follows. A JBL 104 H2 driver on a wooden edgar tractrix midhorn with a flair rate of 300 hz, Dr. Edgar rates this horn combination in the literature at being 105 db/w/m. The tweeter will be an Eminence APT 150 super tweeter horn crossed over at 18db/4000hz, this has a rated sensitivity of 105 db also (according to the Parts Express cat.), which may be as Wayne said, measured on a test waveguide tube rather than on its horn in free space. The bass horn will be a clone of the Klipsch La Scala chosen both for its simple construction, and because when I start the next project, I can sell the empty cabinets on ebay and get enough to buy the birch plywood for the next project. Now I can buy a K33E woofer(made by Eminence OEM) from Klipsch(Fs=34hz, Vas=?,Qes=.410,eff.=96 db/w/m, Klipsch's published figure for this woofer is 104 db in the La Scala) for $100 each or buy a Eminence Kappa 15 with a slighty higher Fs, a Qes that is about 25% lower, a Vas that is around 9.5 cubic ft., but an eff.= 103 db/w/m(listed by Eminence in the specs.) and 250W more peak power handeling than the K33E. PE sells these for around $90 each. The Kappa freq. response curve shows some peaking in the Khz range so the REAL spl of the Kappa's are more probably like 99 to 100 db in the sub khz range. I would obviously prefer to use the Kappa's since they are superior in all ways except for the sensitivity issue. So looking at it a little more closely, Wayne and Danny, I am really only going to see a probable 2 to 3 db mismatch in the freqs. below about 500 hz. I'm still a little unclear about modeling the amp/woofer circuit though. Im thinking a perfect source with a R determined by the damping factor, a series R and L because of the crossover inductor, the parallel and series R's of the L-pad , A series R and L of the woofer , write a Laplace equation using node and loop equations, and then what? How does the horn loading of the woofer change its impedence values( I think it would have to add to the values because of the mass loading of the horn cone and the added restoring forces of the sealed box). When I do a before and after frequency response plot to see if the L-pad has adversly affected the woofer, where would I take the voltage value? Across the woofer and resistance or ??? Sorry about the long posts, but circuit analysis was more than 28 yrs ago for me. Thanks for all the help, its really appreciated........Tom A.