Subject: Re: Impedance correction at a compression driver's Fs - How to calculate - Wayne P?
Posted by Earl Geddes on Thu, 06 Apr 2006 15:46:50 GMT
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WayneWhile I think that your crossover paper is useful for the novice it is highly over-simplified and if naively applied would not yield the desired results.Specific points are:Driver inductances are never ideal - Leach and Vanderkooy both point this out, and your Spice model simply does not represent the actual impedance variations found in real drivers. This can be quite a pronounced effect. In my computer simulations I use the Leach model which works quite well.Spice models only give electrical performance. In the real world we have to add in the acoustical performance of the drivers which adds a great deal of complexity, but ignoring it is highly erroneous. Thats why I don't use Spice for acoustical problems. For instance, any CD device must have a falling axial response which must be corrected in the crossover. This is not reflected in your designs or discussion.The multiple impedance peaks in a compression driver are caused by reflections in the horn. A properly designed waveguide does not exhibit these higher peaks and as such allows for a much better crossover design as well as a much better directivity control. In short, if you have these peaks in your impedance curve then the horn is poorly designed and no crossover approach is going to fix that.