
Subject: Re: Impedance correction at a compression driver's F_s - How to calculate - Wayne P?

Posted by [Earl Geddes](#) on Thu, 06 Apr 2006 15:46:50 GMT

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Wayne While 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. That's 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.