Subject: Re: Crossovers - Again !!!!!!!
Posted by Wayne Parham on Thu, 29 Mar 2012 15:44:30 GMT
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Not sure how to respond. Lots of topics in your post, all generally related to crossovers.

I do have a lot of raw measurements, and sort of interim results, like drivers with filters but not combined with other drivers to form a loudspeaker system. These are usually done during development, to see the results of a particular electrical filter, perhaps when the driver is attached to a horn or something. But I've tended to leave those on the measurement system, and not publish them. I used to publish that kind of data, and there's still probably a ton of 'em on my servers somewhere, but I only really publish datasets for finished loudspeakers.

Finished loudspeakers are the sum of many variables. They're simple systems, but they do have interconnected features. They're electro-mechanico-acoustic systems, which means that things like damping can occur in any of the three states, and in most cases, what's done in one realm will affect the others. But there are cases where each state is decoupled from the others. As an example, mechanical resonance shows up in all three states, having mechanical, electrical and acoustic features. You can modify it mechanically by adding mass or stiffness. You can also modify it electrically by shorting the voice coil, providing damping. Where the cone moves as a rigid piston, there is correlation between the mechanical and electrical systems. They move in unison. So the electrical circuit can provide damping for a primary (piston mode) resonance.

Cone breakup is another matter. It usully only shows up in the impedance curve as very minor anomalies, and for the most part cannot be damped electrically. This is because cone breakup is resonance flex of the cone surface, independent of the voice coil movement. The cone in breakup is decoupled from the voice coil, so nothing in the electrical circuit can affect it. You can reduce signals presented to the speaker at frequencies where the cone flexes, but that's about it. You cannot provide an electrical damping for a breakup mode resonance.

Does that help at all? Does it answer your questions?