Subject: Re: Widerange midwoofers, specs, and x-o pts...
Posted by selahaudio on Wed, 23 Sep 2009 14:19:19 GMT
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darkmoebius2 wrote on Wed, 23 September 2009 01:16selahaudio wrote on Tue, 22 September 2009 19:37Comb filtering doesn't remove everything so you still have to pay attention to the transfer function of your filter. Do you know of a good website that explains comb filtering? I guess I don't really have a full grasp of what is going on with it beyond that it causes an increasing decline in output above certain frequencies. Is it a matter of cancellation? Are there formulas for quantifying how much cancellation there is at certain frequency ranges?

There are some formulas but in reality the measured response can vary from the theory. Comb filtering is basically a phase issue where the drivers don't sum correctly and this creates dips in the response.

The vertical off-axis frequency response of the driver plays a role as well which is why planars and ribbons function better as tweeters in an array. Domes have more interference because they radiate sound the same at all angles. If you ever listen to an array with domes you'll notice the top octave sounds partially missing and that's the result of comb filtering.The same is true for arrays with small drivers operating full-range. Ribbons/planars aren't totally immune to it but they have lower interference due to the longer radiating element and in most cases the quasi-horn loading of the front faceplate.

With woofers and mids the combing starts at a lower frequency and is affected by the center-to-center spacing as well as the off-axis response. After several years of working with different woofers I have concluded that 3"-5" woofers work best with the planars and ribbons that are available. A DSP crossover with steep slopes (48db or more) is a big advantage if you want to use a 6"-7" woofer because it will handle the comb filtering better than a passive crossover.