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Subject: Re: 4 pi crossover optimization

Posted by [Wayne Parham](#) on Sun, 13 Mar 2011 15:48:22 GMT

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Do not suppose that the crossover frequency is all that is important, or even that it is most important. Certainly, you do not want to try to push a driver beyond its usable passband but even if you get that part right, if the phase relationship between the two adjacent sound sources isn't right then the forward lobe will be ill-formed. You'll find response ripple in the crossover region, straight on-axis and pretty much everywhere else.

If you are looking for best performance, you can only swap drivers if you redesign the crossovers. You can only "mix and match" drivers with an existing crossover if your expectations are moderate, seeking only a rough approximation of balanced response.

For more information on the crossover design, see the following documents:

Speaker motors and passive crossover filters

Crossover optimization for DI-matched two-way speakers

High-Fidelity Uniform-Directivity Loudspeakers

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