

---

Subject: Re: crossover electronics

Posted by [Wayne Parham](#) on Tue, 02 Nov 2004 20:59:34 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

I did a little seminar at MAF 2003 called "Crossover Electronics 101" where we looked at a few simple circuits that are often used in crossovers. We touched on first-order, second-order and third-order networks, as well as conjugate filters and other compensation networks. The "Crossover Electronics 101" seminar handout contains formulas with explanations and schematics with corresponding response curves. In this seminar, we could see a schematic, look at its response curve and listen to what the circuit actually sounded like.

Passive crossovers do a lot more than just splitting the frequency sent to each driver. Since the driver itself is reactive, it becomes part of the filter. That's one reason why the crossover often exhibits some peaking. The interaction between the driver's voice coil and circuit capacitance forms a resonant circuit. If it isn't properly damped, it can generate a peaked response curve. Higher order networks have both inductance and capacitance, so they also form resonators that should have a specific load value of resistance for proper damping to prevent peaking. Since the loudspeaker is not purely resistive, that can also be a source of peaking. In some cases, it is enough to be noticeable and can be quite pronounced.