Subject: Crossover Demonstration - I'll send you several types to show
Posted by Wayne Parham on Thu, 21 Mar 2002 15:34:05 GMT
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I've decided to assemble several sets of cable assemblies for you, and to Fed-X them to you just

crossovers with 10dB tweeter compensation cable assemblies but you really should have 12dB assemblies. I inadvertently sent you the 10dB versions because that's what is used in Theater

brain." But the ones you'll need are the 12dB versions, which are actually almost inaudibly different. Still, I'll send you a pair of 12dB and a pair of 14dB tweeter cable assemblies this weekend, just so you can see how each of them sound.More importantly, I'll be sending some cables for the other parts of the demonstration, such as cables that have just a series cap, for a first order tweeter crossover, and those that include a series attenuator that makes the crossover peaking effects more pronounced. These two items will demonstrate peaking at the crossover frequency, just as is shown on pages 27 - 31 of my crossover document. I'll label each cable assembly, and I'll include the response graph of each. This will give everyone a chance to actually hear the effects, which are present even with the most simple networks, the first order single capacitor. And you will have no trouble identifying these effects - They are clearly audible.I see response graphs of systems all the time with evidence of mal-formed networks. The easiest way to spot them is by seeing an anomoly near the crossover frequency. If it's a sharp spike downwards, it's probably due to cancellation at crossover, and is often the result of adjacent second orders or the like. But if it's a sharp peak upwards - often followed by another sharp dip before returning to the baseline - then it's usually evidence of crossover peaking. Even several thousand dollar compression drivers will suffer this kind of peak, if reactive circuits create that kind of signal being sent to them. And sadly, most simple crossovers generate it to one degree or another, and if not considered, the results are clearly audible and definitely measurable. It's exactly what a person should expect, when analyzing the response curve of the filter circuit involved.So I'm sending the crossovers and cable assemblies and stuff for a demonstration. I'll label them all, and I'll send the response graphs shown from reactive circuit analysis using Spice. Then, you guys can hook 'em up, looking right at the graphs as you do. You'll notice the effects immediately - These kinds of 10dB anomolies are easy to hear. Three decibels is pretty subtle, but 10dB stands out pretty clearly. I think you'll find it interesting.