Subject: Passive Line Level Compensation Network?
Posted by GarMan on Mon, 01 Mar 2004 15:01:05 GMT
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Wayne,In a bi-amp configuration, what are your thoughts on implementing HF compensation as a passive line level network, rather than at the speaker. My thinking is, if the 10db or so attenuation is done before amplification, I can get away with using an amp with one tenth the power.If the compensation network is brought to line level, can the high pass filter remain at the speaker, or do the two have to stay together?thanks,Gar.

Subject: Re: Passive Line Level Compensation Network?
Posted by Wayne Parham on Mon, 01 Mar 2004 22:26:50 GMT
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You can certainly install an EQ network in the preamp circuit. That's a great way to do it, actually. But you will benefit a great deal by doing the crossover frequency division ahead of the amplifier as well.

Subject: Re: Passive Line Level Compensation Network?
Posted by GarMan on Tue, 02 Mar 2004 01:19:55 GMT
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I considered the crossover ahead of the amp, but that means I'd have to go active, and that's a much bigger project than a simple passive line level network. Most of the readings I've come across said that passive line level crossovers are great, but only up to second order.Is this true?

Subject: Re: Passive Line Level Compensation Network?
Posted by Wayne Parham on Tue, 02 Mar 2004 07:42:13 GMT
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Well, passive line-level crossovers have some similarities with active crossovers. The idea in both philosophies is to put the crossover ahead of the power amps instead of in the high-current circuit. An active crossover has a buffer amplifier and sometimes it forms part of the filter, like in a Sallen Key circuit. But just as often, it is not anything but another stage, and is then almost the same thing as the amp stages prior to and following a passive line level filter. So that sort of blurs the distinction.

Subject: Re: Passive Line Level Compensation Network?
Posted by Adrian Mack on Tue, 02 Mar 2004 09:44:25 GMT
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Passive line level filter? Is this getting a normal passive filter but putting it on the line level input to the amplifier instead? (like an active xover). That seems very strange to me :S

Subject: Re: Passive Line Level Compensation Network?
Posted by GarMan on Tue, 02 Mar 2004 13:27:02 GMT
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Hey man, I don't make this stuff up. Just a poor soul trying to make sense of all this.Here's a couple of links with some info. Interested in hearing your thoughts, Adrian.http://www.marchandelec.com/xm46.htmhttp://www.t-linespeakers.org/tech/filters/passiveHLxo.html(sorry, but don't know how to include multiple links)Gar.

Subject: Re: Passive Line Level Compensation Network?
Posted by Wayne Parham on Tue, 02 Mar 2004 22:23:24 GMT
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It's a reactive network, and the only real difference is that the output level filter is designed for a low impedance load whereas the input level filter is designed for a high impedance load. As an

impedance of 8 ohms at 2kHz. With an 8 ohm speaker load, that's an appropriate value. If the preamp input impedance is the typical 47Kohms, then a similar preamp-level filter might use a 1700pF capacitor instead. But the basic filter is the same, just using different values that are appropriate for the impedance of the circuit.

Subject: Re: Passive Line Level Compensation Network?
Posted by billfort on Wed, 03 Mar 2004 15:55:53 GMT
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Ok, I think I understand how to implement a passive line-level (6 or 12db) crossover but how do I add and size components to accomplish horn compensation?Thanks! Billfort

Subject: Re: Passive Line Level Compensation Network?
Posted by Wayne Parham on Wed, 03 Mar 2004 22:29:13 GMT
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Use Spice to analyze and model your R1/R2/C1 network to make the response curve shown below. Start off with values for R1, R2 and C1 having reactive impedance that is proportional to values in the low-impedance (speaker output level) crossover, but scale them 1000-times or so to more closely match the impedance of your preamp circuit. Then fine tune the values of R1, R2 and C1 until you obtain the response curve you want.Top octave compensation response curve