Subject: Re: B&C DE 250 and compensation
Posted by Wayne Parham on Tue, 07 Apr 2009 22:11:12 GMT
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It's basically the same as what I'd use for an 8dB network, combined with an L-Pad for variable tweeter output. The L-Pad changes the scale of the R1/R2 values some, because its impedance combines with the fixed resistors. But the proportions are the same and when you analyze the

tweeter circuit, with the L-Pad to provide additional variable attenuation.

The adjustable L-Pad gives the user some wiggle room, but it also means that only 8dB of HF augmentation can be provided. The AK/Econowave network was optimized specifically for the Selenium driver which has some breakup in the top octave, giving it some boost up there. If a full 6dB/octave EQ were given above 4kHz, there would be 12dB emphasis by 16kHz, and the Selenium driver would be too hot in the top octave. But the other side is that when a driver is used that doesn't have this kind of response, the top octave isn't given enough energy, and you lose some of the sparkle. Some drivers need a full 6dB/octave augmentation, which is what you would expect from mass rolloff. Without it, they'll be sort of shouty sounding. It's not as bad as no EQ at all, but it's about half of what you need. It's just not balanced EQ.
Tweeter circuits for constant directivity horns and waveguidesMost of my speakers use R1/R2 values of 16/16 or 25/16, which equates to 10dB or 12dB compensation, respectively. There are other values that can be used (see chart) but most of my speakers have combinations that require

circuit, which provides nice smooth response. There is actually a slight on-axis drop in amplitude above crossover, but when you look at the total power response radiated at all directions in the pattern, it's a good match. Some angles have a slight rise in the crossover region, some a slight dip, with the average being as uniform power distribution as I have found in any speaker I've seen. It's a highly optimized crossover and is partly responsible for the speaker's good directional characteristics.