Subject: Crossovers, damping and matching subsystems.
Posted by Wayne Parham on Sun, 20 Jul 2003 17:29:17 GMT
View Forum Message <> Reply to Message

I prefer to design loudspeakers with subsystems that nearly match. This isn't always practical, and in the case where one system handles less power than the others, it is going to obviously make the system able to handle more power without damage over some frequency ranges than others. Also sometimes you'll work with subsystems that need EQ, like CD horns, and this changes the balance.It is worth noting that if one subsystem is 10dB more efficient but handles 10 times less power, then you really have matched dynamic range even though input requirements are different. At maximum power, both subsystems will generate about the same SPL. Simply attenuate the higher-efficiency subsystem by 10dB, or raise the power of the lower-efficiency subsystem to match. This also gives an opportunity for 10dB response shaping, as is required for CD equalization.As for the Zobel, if you have two drivers in parallel, you can use a single Zobel shared by both. Calculate the value by knowing the Le and Re values in parallel, halved if they're the same model driver.To calculate the power dissipated by the Zobel resistor, you have to know

Crossover Document. Page 66 shows the power transfer curve of a Zobel resistor. Of course, different filters and components will have different frequencies of interest, but the general shape of the curve will be the same. You may want to model your circuit with Spice, which is what was used to generate the graphs in the crossover document.