
Subject: Impedance Correction Conjugate Network
Posted by [FredT](#) on Thu, 10 Mar 2005 21:03:06 GMT

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The FredArrays' bass sounded nice and tight with the solid state amp but a bit uncontrolled with the SET. So I checked my crossover software and it indicated a 30+ ohm impedance peak at the enclosure tuning frequency, which I thought might be contributing to this problem. The suggested network to correct this included a series filter consisting of an 8 ohm resistor, a 1000uF cap, and a 10mH inductor (yes those are large values, but the filter is tuned to 50hz). The difference is amazing - the bass is down about 1dB, but the transient response is remarkably improved, maybe too much. I'll swap the 8 ohm for a 16 and see how it sounds. What's interesting here is that I started this project with a simple 2nd order woofer network and a 3rd order tweeter network. Then it required an RC network to compensate for the woofers' rising impedance and nail the target crossover frequency. Finally, I added the conjugate network to tame the wooly bass. The tweeter was still a bit bright so I added the RCL Zoebel network which Bottlehead corp recommends for this tweeter in the Straight 8. Finally a one ohm resistor ahead of the tweeter crossover tamed the last trace of brightness. What started as a simple network now has 15 parts (17 including bypass caps), but each time I remove one section the sound is degraded. Whoever said simpler is better wasn't designing with cheap drivers?

FredArray Crossover
