Subject: New crossover
Posted by Wayne Parham on Thu, 16 Oct 2008 16:30:28 GMT
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Around the first of the year, I imported the Spice models of my crossover into Keith Larson's WTPro, using the ICD to do acoustical analysis of the crossovers. I made some small refinements that produced a smoother response curve. Here are measurements of the speaker

do is to define a crossover using a Spice model and it makes digital filters that are an exact representation of the crossover. You are then able to measure the loudspeaker with this digital crossover and make changes by simply changing the Spice model. I found that one of the caps in the tweeter circuit could be made slightly smaller, and this made a bit less ripple near the crossover frequency.I also found that reducing capacitance in the Zobel made response smoother, and that the forward axis was pointing upward enough that the lower vertical null was within 10° of the forward axis. Some designers find that satisfactory, but I opted to modify the frequency and slope of the woofer circuit to place the vertical nulls more symetrically.The null angles lie at approximately 20° up and 30° down, which I think is near perfect for this type of speaker. Of course, this depends largely on the horn chosen and the physical spacing of drivers

won't work on every speaker. A speaker with a CD horn of this approximate coverage pattern and having drivers of the right size for directivity matching will respond to this crossover, or one very nearly like it, but deviations in coverage pattern, driver size or baffle spacing will change the interactions and possibly have a detrimental effect. The new crossover is shown below: