Subject: Yeah....AWESOME
Posted by Marlboro on Tue, 24 Apr 2007 22:26:13 GMT
View Forum Message <> Reply to Message

The lower crossover to the woofers is at 165hz. The upper crossover to the tweeters is at 2600. The center to center distance is exactly 5 inches. This sets the upper limit to: 13560/5= 2712hz as the maximum crossover to avoid THE BEGINNING OF comb filter distortion. I'm under that limit. There are other theorists who may suggest other limits, but this one works in practice. The midranges are designed by Sammi of South Korea. They were designed to sell for about 16 bucks a piece, but Sammi could NOT find anyone to buy a three inch widerange speaker at that price. They have copper voice coils, paper-fabric composite cones, and 3.3 Xmax and are pretty flat in FR in the range that I use them. Sammi unloaded them in the buyout market for quite a bit below market value, and were happy to do that on their poor design/cost decision. In the large group, they only have to handle 5.8 % of the total midrange volume per channel. Additionally they are placed in separate 4 inch by 23.5 inch PVC closed tubes stuffed with 4 lb/cu ft fiberglass. Closed tubes have some unusual features which augment clarity in speakers that I won't go into now, but I tested them in boxes and in my tube design, and verified the clarity myself and with two audio observers. This also makes a difference. I could have put the midranges closer and had more them, but then I would have lost the considerable gain in using 4 inch PVC closed tubes. I have actually crossed lower than 2600, but haven't noticed a difference in sound between 2300 and 2600. Considering that 2300 will stress the tweeters more than 2600, and I hear no comb filtering at 2600, I go with that one.I am using Dayton Neo 20FA's. These tweeters are the only dome tweeter of any quality that I am aware are available in the USA which by cutting the flanges can get the center to center distance below 1 inch and closer to .9. This has to be done, and if you look closely at the photos you can see the tightness. The keeps comb filter distortion in the tweeters above an inaudible(for me) frequency of about 15,000hz. The normal crossover for this tweeter when ONLY one is used is 3500hz. However, this is a generalized number for a 2nd order crossover of 12 db/octave slope. Mine is a 24 db L-R electronic crossover. And instead of letting just one carry the load, 30 of them are carrying the load. Discussion about this tweeter on the Parts Express Audio forum(Dayton is the brand name for PE), puts the tweeter as low as 2200hz for a 48 db/oct slope, and easily do-able at 2600 for a 24 db slope when each one is only carrying 3% of the total frequencies as mine are. And of course, my crossovers are stable since they are electronic.HOPE THIS HELPS YOU.Marlboro