
Subject: Bi/Tri Amplification and Arrays

Posted by [Marlboro](#) on Sat, 17 Oct 2009 14:52:55 GMT

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There are many reasons why people who build arrays would use electronic crossovers and a separate amp for each speaker. Rod Elliot at Southwest Audio in OZ has plenty of discussion about this, and if you go there you will never come back if you can afford it. See Rod's discussion at: <http://sound.westhost.com/>

And.... the Richard Clarke amp test(<http://www.tom-morrow-land.com/tests/ampchall/index.htm>) has shown consistently that short of major differences all amps are generally the same, in that after you take out the power supplies and match the output, no one can hear the difference between different amplifiers. The difference comes in in regard to how much back up the amp has to prevent being driven into clipping, and how much IMD you end up with due to clipping of the bass or the mid signal on the tweeters, etc.

For line arrays that are low in distortion to begin with, passive crossovers can be complicated or expensive to put together at 24 db/octave. They have to be able to handle the very high power inputs that are needed(my tweeter array for example) is rated at 480 watts/ch, and the mid at 160 w/ch, and the woofer at 500 w/ch. Usually once you figure up the costs of doing a passive design, and using an electronic design, the benefits of the electronic design wash over any differences in cost considering how little difference there will be.

What this means is that you won't be driving your separate arrays into clipping EVER EVER EVER. So your need to buy some high powered and expensive amp(something you need to consider when buying a large system with a passive cross) for each sub part of the array is way down in need. As long as the amp is rated at the distortion levels that all are, you can buy whatever you need and not worry about having one that has gimundus specs. Of course if you have the money, and/or believe you have purist ears(or are younger than 40 years old), then you are free to buy a class A amp for your tweeters and the biggest most powerful Class B amp you can find for the woofers.

For example, I used vintage kenwood amp for the tweeter array which out puts out 20 w/ch, since the tweeters don't really ever use more than 1 watt per channel, and the amp only has to out put above 2500hz which is loafing time for it. Like wise I have a Kenwood power amp, without volume control, running th mid range. Its output at the resistance level i am using for the mid array is about 175 w/ch. it never overloads and only is reguaird to deal with the 165 - 2500 or so frequencies. I picked up a fairly utilitarian public address amp of 350 w ch which handles the frequencies below 165, and it never gets driven to clipping that I'm aware but if it does, I doubt that I would know since the distortion characteristics of woofers are higher than other speakers generally, and less noticable.

Marlboro
