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 yoou 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 reguaired 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

Subject: Re: Bi/Tri Amplification and Arrays
Posted by darkmoebius2 on Sun, 18 Oct 2009 16:51:16 GMT

Mr Clark places so many unrealistic, non-real world, restrictions on his test that the results really aren't applicable to a lot actual musical listening.

First off, he eq's the amps being tested so that their response is the same. That, right there, should indicate that the amps do not sound the same on their own. Second, I think he is only referring to transistor amps.

The funny thing is that Richard Clark's claim to fame is actually in putting together high-end car audio systems. With that as a reference point, no wonder all amps sound the same to him. And what are the amps he offered to be tested?(but not limited to) - Quote:We have many amplifiers in our demo inventory such as, but not limited to, Alpine, Rockford, Kicker, Phoenix Gold, Precision Power, MTX, Adcom, Kenwood, Pioneer, Sony, etc.

When he tried to extend the challenge to the home audio community, he kept adding to, and changing, the rules until no one was willing to deal with him in the end.

There are a design topoligies where there is a noticeable difference between different amps of a similar rated power:

Tube versus solid state
Class A versus Class A/B, etc.
Zero feedback versus feedback

Subject: Re: Bi/Tri Amplification and Arrays
Posted by Marlboro on Sun, 18 Oct 2009 17:34:48 GMT

I've read all the stuff about it and don't agree with you.

I also don't relate to your use of the implied insult that because(if) Mr. Clarke was into high end car audio that has any bearing on his ability to test amps.

And yes, he's only talking about transister/solid state amps. Although he has tested tube amps in the system.

Having followed the arguments on several forums, I did not see any changes to his original rules except to modify the trials for the first go around, and his unwillingness to keep taking all his gear all over creation for nothing.

But he was only ever testing the amplifier sections of amps, and admittedly on his part, amps are often different due to power supply and ability to handle different circumstances. He never said some amps aren't better than others; he clearly indicated that many amps are better, just that the human ear can tell the difference between amplifier sections of amps above a certain quality level.

And my use of the example is that line arrays using electronic crossovers and tri amping are closer to circumstances of total non-stress to the amp so as to make it a lot like his amp test: there may be less of a difference between amps when they are used in a tri-amped line array.

Marlboro

p.s.: over the past 40 years, I've owned alot of different amps and receivers. Except the signal to noise ratio, I've never been able to tell the difference between any of them playing real music. I've already has a couple of changes in the amplification on my line array, and quite honestly, I couldn't tell a difference, and I'm not even into Car Stereo.

Subject: Re: Bi/Tri Amplification and Arrays
Posted by darkmoebius2 on Tue, 20 Oct 2009 18:59:04 GMT
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Marlboro wrote on Sun, 18 October 2009 12:34I also don't relate to your use of the implied insult that because(if) Mr. Clarke was into high end audio that has any bearing on his ability to test amps. That wasn't my implied point. What I was trying to point out was that Clark originally created this test for car audio amplifiers and systems. Design criterion for the auto industry is significantly different than that of the home audio market. Compact size and gross wpc have been the primary goal for auto amps, with distortion spectra and other characteristics coming a distant third.

With that in mind, and the fact you seem to agree with his hypothesis, are you interested in using car maps in your home system? It wouldn't be that hard to use a step-down transformer to drive their 12V needs.Quote:Someone who chooses to try to discredit someone by claiming that he's unable to understand differences between amps because he's into car audio as if that was a deciding factor when it really has nothing to do with his tests, just doesn't work for me. You have jumped to the wrong conclusion, Marlboro. My point was simply that the goals/criterion of car audio amp manufacturers and home audio, with regard to performance, are not necessarily the same. Quote:p.s.: over the past 40 years, I've owned alot of different amps and receivers. Except the signal to noise ratio, I've never been able to tell the difference between any of them playing real music. Wow, my SE(T) amps sound significantly different than each other. My Art Audio PX-25, sounded different than my Welborne DRD 300B, and those were markedly different than my Audio Sterling ETSE (EL34) or Almarro A318A & A318B (w/ passive volume attenuator bypassed).

Now, did I do a double-blind test with them - no. But, sound levels were adjusted with my SPL meters when comparing.

Anyway, I was just trying to say that I can believe that there is little sonic difference between most car audio amps, and maybe even a lot of SS home audio amps(not all, see Firstwatt series amps), but to extrapolate out to all amps is a stretch that begs credulity. I have compared similar wpc tube amps and heard significant differences between low-powered SEP/SET/PP amps.

I think the big problem with his test regarding tube amps, is that in most/all SET amps, the power

supply is clearly part of the signal path. Making PS part of the gain & output stage. I think Ultrapath topologies tried to separate that out.