Subject: series, parallel and speaker sensitivity
Posted by wasteh202 on Sat, 21 Feb 2004 13:55:02 GMT
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I am curious about toying with my speakers. I have a couple of pairs of the same speaker. The 2Pi tower, 8 ohms and 1watt = 97 db.I am courious what will happen if I run the two pairs together. If I connect the pairs in series, I get a 4ohm load now... correct ? So what is my sensitivity now... does it change ? I should get a higher sound level... No ? I know that sensitivity ratings are measured with one speaker.. and that when you have a pair of 97db speakers that you should have 100db at 1watt(add 3db for the second speaker).Does this still apply when you add a second pair that the increase in sound pressure will go up 3db per speaker or 6db per pair ? hmmmm?It seems to me yes because I am running two pair instead of one. But does the sensitivity really change ? or am I really just allowing more current to go from the amp to the speakers at the same output from the attenuator ? It seems I remember wondering about this question years ago, and coming to the conclusion that "there is no free lunch" yet I also remember being proved wrong... hmmmmmm ?and if I connect them in parallel ?the reason I ask this question is that I am seriously looking at the Decware Zen amp which is very low power, but drives speakers very well to 2ohms. somebody help me please... thanks !

Subject: Re: series, parallel and speaker sensitivity
Posted by Wayne Parham on Sat, 21 Feb 2004 16:45:14 GMT
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I you connect two equal value impedances in series, total impedance doubles. In parallel, impedance is halved. Current and power are circuit sensitive though, so decibel differences are somewhat dependent on the amplifier, and not just the speaker configuration. Still, you can generally assume a 3db to 6dB difference between these configurations. I tend to use the conservative figure of 3dB.Assuming a constant voltage source, series connection current flow is halved, so the difference in power is four-fold. Parallel is the other way around - Impedance is cut in half, so current flow doubles. That makes power increase four-fold.Amplifiers aren't perfect voltage sources though. They aren't perfect current sources though either - They're somewhere in between. That's why many amplifiers provide power ratings when different loads are connected.

Subject: Re: series, parallel and speaker sensitivity
Posted by wasteh202 on Sat, 21 Feb 2004 22:16:44 GMT
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thanks for the reply Wayne.... I always appreciate your input.If I understand correctly, the configuration of series wiring yeilds more db's... is this correct ? or does it just appear that way ? I

do realize like you stated that the total circut is amp dependant. My Harman Kardon amp is rated at 80wpc into 8ohms(5 channel amp, however I will not by using this amp.)When the load on this paticular amp is 4ohms... the amp is only rated at 105/110wpc(I don't remember exactly but it does NOT double) I realize also that all amps can not handle well a 4 or 2ohm load. But, assuming the amp can... and actually prefers the low resistance, like the Decware Zen amp, do you get approximately 3 to 6db more from two pair of speakers by connecting them in parallel ? Depending on the amp... correct ?thanks again

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Subject: Re: series, parallel and speaker sensitivity
Posted by Wayne Parham on Sat, 21 Feb 2004 22:34:48 GMT
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Parallel connections increase current flow if voltage is held constant. Series connections reduce current and increase maximum safe voltage. Two speakers connected in parallel will be louder with the same voltage input. Connected in series, they will handle higher voltage.If you want higher sensitivity and don't need higher power handling, go with a parallel connection. If you don't need higher sensitivity but do need a higher maximum SPL, go with the series connection. Either way, you'll want to make sure you're staying within the operating range of your amp.

Subject: Re: series, parallel and speaker sensitivity
Posted by wasteh202 on Sun, 22 Feb 2004 01:22:14 GMT
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Thank you very much Wayne...you are always a help here.
