Subject: Woofer/Amplifier questions
Posted by Anonymous on Fri, 29 Nov 2002 06:12:24 GMT
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Take two different amplifiers;Amplifier #1100w into 8 ohms200w into 4 ohms400w into 2 ohmsAmplfiier #2100w into 8 ohms100w into 4 ohms100w into 2 ohmsAmplifier #1 is a conventional design where power doublesas impedance halves.Amplifier #2 is a breed that monitors load and lowers the railvoltages to maintain the same power regardless of load.Two questions.1. If amplifier #2 has variable rail voltages, would clippingoccur sooner at 2 ohms vs. 8 ohms load? Suppose rails are +40v/-40Vat 8 ohms, and +20v/-20v at 2 ohms. I argue that you wouldclip easier on transients at 2 ohms vs. 8 ohm, others say100w = 100w, makes no difference.2. Woofers have an impedance curve that varies with frequency.Hypothetical -> if an 8 ohm woofer's impedance is 2 ohmsat 60hz, does amplifier #1 output 400w @60hz whereas amplifier #2only outputs 100w across all frequencies, in which case, peoplemay interpret amplifier #1 as driving woofers better due tomore power ?

Subject: Woofer/Amplifier answers
Posted by Wayne Parham on Fri, 29 Nov 2002 06:56:38 GMT
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Since power is proportional to the square of current, changes in current effect power even more than changes in voltage. So a feedback mechanism should sense not only voltage but current also.

Subject: Re: Woofer/Amplifier answers
Posted by Anonymous on Sat, 30 Nov 2002 04:56:39 GMT
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This whole thing started on the car sound forum wheresomeone posted a message saying that the Brax X2000 car amplifiersounded ballsy as compared the JL audio 300/2 amplifier,both rated similar in power, 190w/ch into 4 ohms (Brax),150w/ch into 4 ohms (JL). The author of the messagewanted an explaination why Brax sounded like it wasdriving the dynaudio drivers better.Since nobody offered a reason why Brax was sonically better,I offered a possible reason. In a nutshell, I said itwas power that was the determining factor. The Brax is a dual monobridged design, it almost doubles power as impedance halves, 1100 watts total @ 1 ohm. The JL is the amplifier that lower rail voltages to maintaina constant 300 watt in the 1.5 ohm - 4 ohm range.I was being nice and said you are comparing a 1100 watt amplifierto a 300 watt amplifier, this is technically an unfair comparison - hehe.. I also offered an esoteric thought --> Dual mono bridged brax,the speaker sees 2x rail voltage since it's bridged, clipping occursprobably at a higher voltage whereas the JL amp will lower the voltagerails if impedance dropped, hence I'm thinking it

may clip sooner.The JL audio guy comes on the forum to defend his amplifier technology stating that the ideal amplifier doesn't double power as impedance ishalved, instead, the ideal amplifier supplies constant powerregardless of load. This is fine theoretically, but youcan't defy the laws of physics - hehe To maintain constant powerat varying loads, there is a hidden penalty, the penalty is thatthe rails voltage drop. The drop in rail voltage would seemto cause a loss of dynamic headroom as the audio signal mayreach clipping much sooner.I posted a message on another forum and Nelson Passsaid JL audio is more concerned with marketing than amplifierdesign - lol You know who Nelson Pass is? Famous amplifierdesigner, founder of Threshold and now Passlabs.comAnother esoteric thought --> if someone made a 1/4 ohmwoofer and a matching amplifier that is 1/4 ohm stable,suppose the rail voltages are +10/-10v to produce 400w peak.The output signal swings from zero to 10 volts, anythinghigher is clipping correct?Take the amplifier of today, +55/-55v rails, drivinga 8 ohm woofer, that is about 400w peak. The outputsignal swings from zero to 55v, anything higher isclipping correct?What I'm wondering is --> can you distinguish betweenthese two hypothetical amplifiers, both the same power rating,or will the low voltage amplifier be more likely to clipon transients and would it be more audible ?So far, nobody has not offered an explaination on various forums, even the technical ones. The solidstate forum, people are scratching their heads.Perhaps I think too much ?

Subject: Re: Woofer/Amplifier answers
Posted by Wayne Parham on Sat, 30 Nov 2002 06:15:29 GMT
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