Subject: Re: Contemplation on combined Sensitivity(long)
Posted by DanF on Wed, 17 Apr 2002 20:39:52 GMT
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I look at it like this...If you are talking "efficiency" then that would be the acoustic power vs. the electrical power applied to the driver(s) and would probably best be expressed as a percentage - generally less (way less?) than 10% I think."Sensitivity" would be the Sound Pressure Level (SPL) generated by a particular input voltage. Most speakers are actually rated for sensitivity such as 98db @ 2.83v rms @ 1 meter. Of course the 2.83v level is used because it corresponds to an actual 1 watt when driving an 8 ohm load; it just makes a nice standard.The amplifier puts out a _voltage_ signal identical to the input except multiplied by some factor - a constant voltage source like Adam said. Adding another driver (hopefully) doesn't change this. Since each driver is now seeing the 2.83v, each driver is drawing 1w and the amp is delivering 2w total. We doubled the power being delivered and therefore added 3db to the sensitivity of the system.So we arrived at basically the same conclusion up to this point.We also doubled the radiating surface area. That is... our 2w is not moving one driver with x square inches of surface area but two drivers - 2x surface area. So we are moving twice as much air - right? That means that we are delivering twice as much acoustical power into the room (as compared to putting 2w into one driver). Twice the power being delivered into the room - add 3db again.So adding one more driver adds 6db to the "sensitivity" of the system at the cost of dropping the impedance to half of what it was before. So nominal 8 ohm speakers with a 4 ohm minimum become 4 ohm speakers with a 2 ohm minimum. (And my decrepit receiver then emits a wonderful aroma into the room... Doh!)Did that help? I'm sure if I were a slow typist I could have fit this into fewer words. Ha. Dan Ferguson