Subject: Re: Thanks, Earl!
Posted by Earl Geddes on Mon, 31 Jan 2005 01:30:44 GMT
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DukeThanks for the question.You are absolutely right to ask about "scaling the effect". So many of these discussions go on and on about thgings that don't amtter at all. Like arguing over the differences in second haramonic for different motor structures - and then finding out that we can't hear second harmonic distortion. In my book I put audio BS into two categories 1) there are just wrong 2) they are absolutely correct, but it is irrelavent. Another example of the second is the skin effect in wire. Sure it occurs but "So what?"I thknk that a lot of arguments would not get as heated if we always classified the significance of the effect.Now back to your original question. Yes would lean towards your being correct that pro sound drivers in homes would rarely see enough energy to heat them up. But, in some cases the speakers are on for a very long time so the magnet will heat.I read on some of the other answers a discussion of power compression. I think it worth noting that the vast majority of power compression comes from the voice coils resistance change with temperature and not the magnets. Further, since the voice coil heats almost immediately - it has a very low thermal time constant - it will heat almost independent of how good the structure is cooled. There are two types of power compression - the long term and the shot term. We usually see data only on the long term one and tend to forget about the short term one.Incidentally it is an easy matter to elliminate the short term power compression. Simply wind the voice coil with copper wire with about 5% nickel in it (also called Constantin) because it has almsot no change in resitance with temperature. Unfortunately it also has a higher resistivity to begin with. A double edged sword.Ciao