Subject: An attempt at an answer...
Posted by mollecon on Fri, 12 Sep 2003 18:03:08 GMT
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Quote: " but isn't it, for a sealed box, the larger the enclosure (not smaller), that means the less overring it produces?"Yes it is - the larger the box, the lower the Q (which is basically how ringing is described in these terms) AND the resonance. These two follow each other in a linear manner in closed boxes - if you move the driver to a smaller box that raises the Q with, say, 30%, then the resonance will rise with with 30%, too.Quote: "But the real thing is resonance overring. The thing that has been troubling me... the signal has to be applied at the resonance frequency or very near it for it to be excited into ringing. If its not, then it doesn't ring (?)"I agree that 'the real thing' is resonance ringing. And the problem is, you DON'T have to be that close to the resonance to exite it. Let's say we have a system with a relatively high Q (well over 1) & a resonance at 50Hz - & let's say we feed it a powerfull 80Hz signal that just stops... Well, the 80Hz signal do stop, but not the ringing at 50Hz! The diaphragm has been set in motion, & WILL continue to move at system resonance untill the damping kills it. This is why poorly damped systems get a reputation for playing 'one note bass' - they insist on delivering their system resonance to the listener, no matter what note is played.Yes, 360 degrees is one cycle.I now next to nothing about group delay - I do know that a closed box have what is referred to as a minimum phase behaviour at & and on both sides of the resonance frequency. This means that if you use an equalizer to boost the lower frequencies back to level, you ALSO take care of the phase, basically. Btw., I forgot to say that the closed box actually have one advantage more compared to a reflex (I mentioned A LOT of advantages for reflex!) - it has an inbuild automatic 'subsonic' filter, which helps the cone from being overloaded below resonance - reflex boxes can be pretty 'hysterical' in that sense, since the driver in practice behaves almost as if there weren't any box at all below the systems working area. The use of rather stiff suspensioned pro type drivers in many high efficiency speakers does, however, help a lot in this respect.Quote: "As long as resonant overring is kept minimum, then both should sound as good as each other (providing both have flat response). Is this correct?"Yes, I think you interpreted that totally correctly.As you probably can see from my post, I know considerably more about closed boxes than reflex one! No wonder, they are far less complicated behaviour wise. In some manners, they are alike, though - for instance, the 'bigger box = better damping' (less ringing) is also true for reflex boxes, PROVIDED you keep the box tuning the same. And the same size box will be better damped the lower the tuning is (assuming same driver, of course!). But when you start fooling around with BOTH tuning & box size, it becomes a bit complicated. The 'puter programs usually can tell us what happens in the frequency domain, but are often more than reluctant to tell about system Q & ringing.The fact remains that all systems are compromises, & that well sounding systems can be made from using both reflex boxes & closed ones - not to mention the many other box principles that are being used. There is more than one way to good sound.Now will someone please tell me to shut up?