Subject: Re: Extended bass response from small cabinets
Posted by Paul C. on Fri, 13 Jul 2001 00:52:07 GMT
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So, Wayne, what all this means is that when you want small and low, you trade off for efficiency. This has been my experience... you just can't beat physics. Just can't do small, low, and loud all at the same time. Also, these designs generally depend on active participation from the amp... and EQ boost to flatten out the bottom end... again, taking even more power.You see the sub plate amps all the time as having X db boost at Y hz. This is a part of the design.OK, so why can't we do this... with smart electronics we have these days, why not extend the feedback loop even further, not just in the amp (Wayne, ignore this...Amplifier 101 class: this is the circuit that controls gain in an amplifier, and reduces distortion, forcing the output to mimic the input), but from a transducer (mic) at the woofer end of the chain, feeding back to the amp, to control distortion, overring, compensate for the bottom end rolloff. That is, making the amp a more active participant in the whole process.There is noise cancelling equipment out now... muffler systems that have speakers in them that sense engine noise, and generate 180 degree out of phase signal. Yamaha has a device, Silent Brass, that is a mute for trumpet and trombone, picks up via mic, generates 180 degree out of phase sig, and cancels the sound. The player hears himself via earphones, but no one else can hear it! A college music major could literally practice in his room while his roommate slept only a few feet away! I have seen this demonstrated, it works!So, the technology is here... we can use it to compare the input of the amp to the output of the spkr, a simple comparitor... one little op amp, and generate a correcting signal to send back to the input of the amp. So, this negative, active feeback loop can extend the frequency range on the bottom end, fix many of our present ills... maybe not with 100 db/wt/meter efficiency, but at least we can make clean bass with smaller boxes.(As far as that junk they pass off as high-end car stereo these days, I have never heard a real bass drum boom as long as these cars do. In fact, a bass drum does not sound like that at all. I play with drummers, they work hard to get a sharp, fast, impact sound, not a long, resonant boom. They put damping in their bass drums to kill the resonant booooom, and instead get a fast, precise whop! So, I just stick a pair of Jensen 6x9 2 ways in the doors, and try not to listen too critically.)Like you, Wayne, I have run the numbers by hand (with a calculator, actually), with various programs, and still, if I want to feel the T Rex walking in Jurassic Park, I need boxes big enough to really PO the wife about the new living room decor.