Subject: Why won't a single driver speaker do metal?
Posted by Bob Brines on Tue, 26 Jul 2005 12:25:46 GMT
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There are two questions here: Why won't single-driver speaker full-range do complex music? Why won't single-driver speakers full-range to highly dynamic music? I really don't have an answer to the former question. I haven't heard or recognized this problem, but then I don't listen to electronic rock/heavy metal, so I wouldn't know. I suspect that it is tied to the latter question, but those who know more than I should feel free to jump in.I think I do have a handle on the latter question.Single-driver full-range speakers have a limited dynamic range. ( Limit this discussion to speakers that cover 40-20k Hz with a single driver. Let's not discuss front horns, etc where the main driver is basically a mid-range.) My Fostex FE167E speakers are limited to around 95dB maximum SPL and my Lowther speakers closer to 100dB. That's all you can get with reasonable distortion levels. These drivers are excursion limited, and in resonant cabinets, BR's, TL variants (like mine) and, BTW most highly convoluted back horns which act more like multiple TL's than true horns, they will start to run out of excursion around 80Hz. The sound will start to become muddy and congested. From a practical point of view, this simply means that there is a limit to how loud you can play your music.The problem with limited dynamics will be most obvious with material such as romantic symphonies. The dynamic range between a solo oboe and a full blown fff tutti is something like 30dB. If you are limited to 95dB, then that oboe needs to be no more than 65dB. Now 65dB is soft.Depending on your ambient noise level, air conditioning, etc., 65dB could be in the noise floor. Of course, 95dB is really loud, ear damaging if sustained for any length of time. IMO electronic rock has more sustained high dB material and therefore overloads the speakers. Rockers are also more inclined to crank it up. Of course, I'm not a rocker, so humor me. In any case observe the above warning.Amplifier headroom is also important here. If you are running a flea power amp an trying to get sustained 95dB out of a 92db speaker, you will be clipping the amp consistently. Without starting a flame war as to why anyone would prefer a flea-powered amp, if you want a clean 1 watt average output, you need 100 watts of headroom. Maybe I exaggerate somewhat, but you get the picture.IMO -- YMMV.Bob