

---

Subject: Re: Does sensitivity MEAN coloration?

Posted by [Wayne Parham](#) on Thu, 15 Jan 2004 20:04:26 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

If you think about it, all high-efficiency cabinet designs tend towards using horns or resonators. This, in itself, is going to cause a tendency to have a peaky response curve. That's a generalization, to be sure, but it is one that isn't totally without merit. There are a couple things that I think are important to consider though. First is that all loudspeaker systems - even low efficiency ones - have resonators. The speaker motor itself is reactive, and the diaphragm and suspension form a mass/spring resonator. The crossovers are reactive. Frankly, the whole system is highly reactive, and nowhere near a resistive load, in any domain - electrical, mechanical or acoustic. So there isn't any getting around this, and a good design takes it into account, damping the resonances that are there in all system designs. Second is that dynamic range is difficult to achieve with an inefficient speaker. You can't hit 120dB peaks with an 85dB speaker. It would require 3000 watts, and that if the speaker didn't suffer from compression. No point in even going through the whole compression/power issue here - The point is that a low efficiency speaker cannot reproduce sounds at even realistic levels. No way to convincingly reproduce an orchestra with one. You can make a sound of a toy orchestra, or of the sound of an orchestra very far away. But the illusion of sitting in the good seats is just not possible from the limited output of a low efficiency speaker, in my opinion. So while I think flat response is a higher priority than high efficiency, low efficiency speakers aren't acceptable to me even if perfectly flat. If the speaker can't hit 100dB at the listening position, it's just not an option for me.

---