Posted by Wayne Parham on Fri, 20 Jun 2008 19:56:24 GMT
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The heat sink on the front of the Kilomax is one of the reasons I stopped using them. I love the idea of pole piece wicking, but don't much care for the idea of putting the heat sink in front of the cone. In fact, I have a patent applied for a pole piece heat sinking device, but it removes heat out the back, not the front. The center part of the cone is an important region for sound radiation, especially at higher frequencies.As for the DE250, it's definitely smoother. The PSD2002 is a good driver, but the DE250 is better, in my opinion. The amplitude response is certainly

implementation of a DI-matched two-way speaker to date. It is mature and refined to the point I can't see any further optimization possible. At the risk of sounding immodest, I don't think there is a better DI-matched two-way speaker anywhere, at any price. I guess a person will always probably tend to favor their own "kids", but the measurements bear this out. I've put a lot of time

loudspeaker performance dataJust a few more words about room interactions:The key to damping room modes is sympathetic vibration of things that are big enough to absorb long wavelengths. The same things that tame higher frequency reflections don't apply to bass. That's why large panels work well, there is a lot of real estate to vibrate with the bass, and they are able to damp the modes by absorbing energy at low frequencies.An example that comes to mind is the futility of making bass measurements indoors. A profesionally built anechoic chamber is only truly reflection free down to the upper midbass, because the absorbent wedges that line the walls are completely ineffective at bass frequencies. They aren't big enough. That's why bass measurements are best done outdoors. A wide open space is the only truly anechoic environment.Room modes tend to reinforce bass at some frequencies and cancel them at other frequencies. The modes are different at different places too, so you may find the corners lack some bass frequencies and have plenty of others, but the exact opposite frequencies are lacking or over-represented in more central areas of the room. The room tends to form pockets, and depending on the rigidity of the walls, those pockets are well defined or if damped, they may be less so.Two kinds of speakers are less sensitive to strong bass modes. One kind is speaker systems that lack bass, the other is speaker systems with distributed bass sound sources.If a speaker lacks bass, then there isn't as much energy put into the room to begin with. I've noticed people with resonant crawlspaces or strong bass modes tend to favor single-driver speakers or mini-monitors with small woofers. They don't generate a lot of bass, and what's there is augmented by one or two room modes. Larger speakers would tend to sound boomy in some bass frequency ranges, with holes of missing bass in between. The smaller speakers don't sound boomy; The "boom" brings up the bass level a little bit, maybe makes them sound better.Satellite/sub systems are less sensitive to room modes too. There are more bass sound sources, and that tends to smooth modes by averaging. The satellites have woofers in them and so do the subs. In the modal range, these generally overlap, each making sound. If you place them well, there are more wavefronts combining, making a more complex interference pattern. Dense interference why the modes are less well defined.Think of the ripples on a pond when one or two rocks are thrown in, forming well defined rings spreading out from each impact. Throw in two rocks, and you'll see rings spread out from the impacts, cross each other, perhaps reflect off the side of the pond and back inwards. You can see each crest and trough of each wavefront, because they're well defined. When waves cross where each is at a crest, the peak is bigger,

where each is at a trough, the valley is lower.  Where a crest meets a trough, they cancel out.  A leaf on the pond will rise up and down, riding the crests and troughs.Now think of the pattern that forms when rain falls, making multiple impacts.  It is such a complex pattern than no discrete wavefronts can be seen.  A leaf on the pond doesn't go up and down, it will jiggle around but it won't rise and fall on the edge of a wave because the waves are all lost in the dense interactions between one another.  This is how dense interference smooths the average sound level, and how it helps make the energy distribution throughout the room more uniform in the modal region.The

loudspeakers.  Of course, damping is important too.  Damping and multiple bass sound sources are the best ways to smooth room modes.

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