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Subject: Re: 1pi or 2pi for surrounds?

Posted by [Wayne Parham](#) on Thu, 15 Sep 2011 17:35:16 GMT

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For home hifi and home theater, I like running the mains and surrounds full range because of the benefits in the modal region. Blending multiple sound sources smoothes the room modes.

If you were running in a prosound environment, it would be a different story. I wouldn't suggest running mains full range. In that application, you always high-pass the mains where systems are pushed hard, to limit excursion.

Or if you had little bitty mini-monitors using drivers that could easily be overdriven. In that case, you'd want to high-pass them too.

But this just isn't the case for speakers like these used in a home theater. These are efficient speakers designed for high-power use, and you have several of them. The mains carry most of the load, as do the subs. The surrounds don't really do all that much. Even in the occasional full pan to a surround channel, we're still not pushing these too hard. As long as you keep the power below 100 watts, they're fine.

On the other hand, if you have the capability to high-pass at the Helmholtz frequency, that would be a good thing to do. It will limit signals where the woofer is unloaded, and isn't making any sound anyway. But if it isn't possible, don't sweat it. These speakers handle a lot of power, and are efficient enough that they produce a lot of sound. You can easily get over 110dB/M from them, which is plenty for surrounds.

So with all that said, I do not suggest using high-pass - at least not above the Helmholtz frequency - with these speakers. Very little is gained in a home hifi or home theater environment. The benefits of reduced IMD (from high-pass) are far outweighed by the benefits of modal smoothing (by not using high-pass) in this application.