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Subject: Re: Multisubs

Posted by [Wayne Parham](#) on Wed, 02 Feb 2011 17:01:11 GMT

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What I mean when I say "leave the mains wide open" is to not high-pass them, let them run all the way down.

As you've said, conventional wisdom is to high-pass the mains at the same frequency you low-pass the subs. This is a traditional crossover setup. And there are very good reasons to do it that way. It reduces the strain on the mains since they don't need to handle bass. Excursion is reduced, bandwidth is limited, so IMD is reduced. These are good things to do, important when the mains are pushed very hard like in a prosound environment or when the mains are little-bitty mini-monitors designed to be used with subs.

If the speakers were used outdoors or in a very large room where there were no modes in the passband, this would be the end of the story. You would want point source bass, and crossover to limit excursion on the mains would probably make the most sense.

But indoors, we have a competing priority, which is room modes. We can smooth them using multiple sound sources below about 100Hz. Now then, if you have deep pockets and can afford four subs, if your room layout allows that many speakers placed around, then you can have your cake and eat it too. High-pass the mains at say 80Hz and run the lower frequencies to the subs. Might want to have the two closest subs run to 80Hz, and the more distant ones low-passed at 50Hz to prevent localization. But the point is, with four subs, you can high-pass the mains and still have multiple bass sound sources.

Another option that works with powerful mains is to just let them run all the way down, providing two more bass sound sources. This makes it possible to take advantage of the multisub configuration with just two subs. I wouldn't suggest this if the mains are mini-monitors because the extra excursion will make them sound terrible. But an efficient speaker with a large woofer designed to handle a lot of power isn't going to gain much by high-passing to reduce excursion at normal home listening levels.

These speakers are loafing along even when it's so loud stuff is rattling off the walls. So you can gain two bass sound sources simply by letting the mains run all the way down and blending them with the subs. The subs are still low-passed at 50Hz to 100Hz, but the mains are run full range. With the right setup, you only need two subs this way and still get the modal smoothing benefits of the multisub configuration.