Subject: Re: High-pass on the 4pi?
Posted by Wayne Parham on Wed, 29 Feb 2012 20:08:41 GMT
View Forum Message <> Reply to Message

High-pass at the Helmholtz frequency of the mains. The multisub configuration is not limited to direct radiators, but can be employed with hornsubs as well. Delay on the mains is really used to match the acoustic centers, to compensate for the extra depth of a basshorn.
Helmholtz frequency of each modelYou delay the mains to match the hornsubs, to provide in-phase summing without a multi-cycle shift. But in a multisub configuration, this takes on a different meaning, since in-phase summing is non-sequiter in the modal region. What you really want is for the sound sources in the modal region to be staggered in time. It's the varying amounts of "delay" from various sources in different positions that make the multisub configuration work.

In the end, since the reflections are delayed, there is no way to get them all in-phase. That's what room modes are all about. The take-away is you will want to delay the mains to nearly match the flanking subs, but do not worry about the more distant subs. The flanking subs should actually be just behind the mains, to fill in the hole from the reflection of the nearest wall just behind them.

Also, do not "crossover" subs to mains like you might outdoors. Instead, low-pass the subs around 80Hz, which is the Schroeder frequency for your room. Blend every sound source you have in this region. Only high-pass the mains to reduce energy below their Helmholtz frequency, to prevent over-excursion. Do not high-pass them higher than that, because the goal is to have multiple sound sources below the Schroeder frequency.