Subject: Flanking subs and phase
Posted by sfdoddsy on Mon, 06 Jan 2014 00:42:58 GMT
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I have been using stereo flanking subs for a while but have a question about best practice.

My amp (Crown XTi) has DSP built-in and thus I have the ability to delay my mains to match their respective flanking sub. I can also adjust phase on the subs.

So the question is should I adjust the phase for each main/flanking pairing to get the flattest measured response? I use REW.

Subject: Re: Flanking subs and phase
Posted by Wayne Parham on Mon, 06 Jan 2014 18:42:04 GMT
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It certainly cannot hurt to adjust for flattest response. That is the whole purpose of the flanking sub configuration - To provide smooth response by mitigating anomalies created by interference from the nearest boundaries, namely the wall behind the speakers and the floor.

However, I will say that you will probably find delay/phase adjustment unneccesary. The physical offset in all three dimensions provides the delay that does the work.

What we're doing is to use the flanking sub as an element of a truncated array formed by the woofer in the mains and the helper woofer in the flanking sub. The difference in distance between each woofer and the boundaries causes the flight time to be different for each, making the self-interference notch for each occur at a different frequency.

So essentially, where one source has a deep notch from self-interference, the other one doesn't and vice versa. This makes what would have been a 10-20dB notch from a single woofer become a ~6dB notch from the pair. It's most effective in the frequency range approximately 100-200Hz, wich is too high for more distant distributed subs but still low enough that boundaries cause response anomalies.

Subject: Re: Flanking subs and phase
Posted by sfdoddsy on Mon, 06 Jan 2014 22:03:02 GMT
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Thanks. I'll try it with and without delay adjustments.