
Subject: Re: 4PI Plans Request

Posted by [mathiasb](#) on Mon, 09 Dec 2019 20:59:32 GMT

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Wayne Parham wrote on Mon, 09 December 2019 12:25: I think that's a good way to go. Run the flanking subs with a 100Hz/2nd-order low-passed copy of the signal sent to the main speaker each sub is flanking. Run the mains set to "large" so you blend with the flanking subs. The mains should be able to handle the LF content unless they just really can't handle the low notes or you are pushing them close to their limits. If you're pushing them hard, then high-pass them at their Helmholtz frequency.

This Helmholtz recommendation is, of course, relevant for vented systems. Above the Helmholtz frequency the vent reduces excursion, but below Helmholtz the woofer is unloaded. If sealed, it's not such a stark a change in excursion but then again, there is no reduction of excursion from the vent. So for sealed woofers, high-pass where excursion becomes a problem either because of IMD or x_{max} or both. The goal is to run the mains as low as possible for modal smoothing.

The improvements from flanking subs and multisubs are measurable and audible. The effect is anywhere from subtle to striking, but it's always noticeable. Flanking subs make the upper midbass and lower midrange smoother. Male voices, piano, guitar and cello sound clearer. Distributed multisubs make the deep bass smoother. You will notice bass notes that seemed light or even missing before. Sounds like a better foundation.

Totally agree (not that facts need agreeing) about multiple subs, I run two now, independently.

I'd have to get a second amp to do this, so I can DSP the front speakers - however, quick question on the low pass for the subs - how come 100Hz, and not, say, 80, or 120? Is that based on Pi4 (would make sense), or just a starting point in general?