
Subject: Flanking subs also pulling LFE duty
Posted by [rvsixer](#) on Sat, 15 Aug 2015 02:59:01 GMT

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Hello All,

I currently have a nice 5.2 speaker setup (all DIY), that I enjoy very much (<http://techtalk.parts-express.com/showthread.php?232472-Sunflower-HT-Music-LCR-Build&p=1868826#post1868826>). But the time has come for something new. Well, actually something old and missed (big 15" woofers !!!).

I am considering a 4.4 setup comprising of 4pi mains, 1pi surrounds, and four of my current 8" 1 cubic foot Dayton RSS210HF subs. The 4pi's would be upgraded to 7pi's in a few years, as the retirement home surely will have a nice two corner HT/listening room.

After reading here extensively about Wayne's flanking sub concepts, I am getting the normal way to set this up would right/left flanking subs running alongside full range mains, and LFE covered by two (or more) distributed subs.

Now, I have gotten really used to and enjoy my carefully placed/tuned/blended bass managed+LFE subs, that dig down nicely to around 17Hz in (small) room. Given the 4pi's don't dig quite that deep, not to mention the sats, I started thinking about how to setup up stereo flanking subs, that could ALSO could be called upon to help with distributed LFE duties. AND be able to have stereo mains that run all the way down to 20Hz and below. AND not need six subwoofers to do it, only four (space limited).

Here's the idea:

- 1) Low pass mains/sats/(phantom)center as normal using AVR bass management (let's say 40/60/80Hz, whatever sounds/measures better). This gets us the full 20Hz up level matched response on all channels, with four subs taking care of the lower modal regions, and relieves the main woofers of some bass duty (possibly resulting in an improved midrange).
- 2) Setup a 100-120Hz 2nd order Butterworth lowpass filter on the flanking subs. This gets us flanking sub configuration from bass management frequency to ~200Hz with the mains.
- 3) Feed LFE from AVR to all subs (flanking and distributed). This gets LFE reproduced among four distributed subs.

I have an Outlaw ICBM-1 that would allow this type of configuration. Alternatively this could be done using a summing mixer (or miniDSP) combining AVR R/L and LFE preouts, along with a sub plate amp's crossovers.

Crazy? Plausible? Workable? I have a feeling I missed something obvious....let me have it .

Subject: Re: Flanking subs also pulling LFE duty
Posted by [Wayne Parham](#) on Sat, 15 Aug 2015 14:24:57 GMT

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You're right on the money on this setup. I expect it will sound very nice.

Subject: Re: Flanking subs also pulling LFE duty
Posted by [rvsixer](#) on Sat, 15 Aug 2015 18:23:15 GMT
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Thanks for the config confirmation Wayne.

Lets say this does not work out as intended, and I do wind up running the mains full range (i.e. AVR set to LARGE). Do I need to use a highpass filter so sub-40Hz content will not damage the woofers, or do the Omega 15 and 2226H cones simply not excite below where damage would occur? I ask because I do have to highpass my subs to prevent over excursion.

Oh yes 4pi plans please.

Subject: Re: Flanking subs also pulling LFE duty
Posted by [Wayne Parham](#) on Sun, 16 Aug 2015 01:32:22 GMT
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I would always run the mains large, because it gives more bass sound sources. As you know, the goal is to blend the mains with the flanking subs. But it never hurts to high-pass the mains at their Helmholtz frequency, because there is almost no output below that frequency anyway. The midwoofer driver is completely unloaded so high-pass at the Helmholtz frequency prevents over-excursion.

Subject: Re: Flanking subs also pulling LFE duty
Posted by [rvsixer](#) on Sun, 16 Aug 2015 15:25:57 GMT
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Got it. Thanks again for the info, and plans! I know a lot of thought and work went into your designs.
