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Subject: Re: Why do you not use summed bass for flanking subs?

Posted by [zheka](#) on Tue, 29 Jan 2013 21:25:32 GMT

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I found what maybe a potential compromise.

I still use summed signal.

I set crossover on the AVR fairly high - 160-200Hz. I then add 1st order low pass filter at a lower frequency (80-100Hz) directly in the DSP for my front subwoofer amplifier.

I found that even with attenuated output the sub is still effective at modal and interference smoothing yet does not muddy the sound stage or at least has lesser potential for doing so.

what do you think?

Wayne Parham wrote on Mon, 28 January 2013 16:47

I suppose you could send a summed signal to flanking subs, and it would probably work pretty well in most cases.

The problem is that lower-midrange content panned hard left or hard right would go to both flanking subs even though only one of the mains would receive the signal. So the lower midrange coming from the flanking sub on the "off" side would probably sound unnatural to most people. It would sound like a rumbly "echo" on the wrong side.

Flanking subs get the lowest part of the vocal range, almost enough to be able to make out words if volume is high enough. They're designed to generate output well above 100Hz, up to 150Hz and sometimes higher.

The first two octaves from a piano come from flanking subs. Lots of instruments play in this range - See the red and orange areas in the chart below. All of the red and most of the orange comes from flanking subs. Since they are sent a low-passed copy of the main speaker they are flanking, and since they are fairly close together - just a few feet away - the mains and their flanking subs blend seamlessly and give the impression of a single sound source. But it only works as designed when the flanking subs are sent a low-passed copy of the mains they're flanking.

So anyway, try using the summed signal and see what you think. It's an easy experiment. Just setup the subs flanking the mains, and set the LFE channel crossover to a fairly high frequency. I think in most cases, it will sound fine that way. Most times, the mains get a signal that is pretty similar at bass and low midrange frequencies. But those rare moments where low-midrange content is panned hard-right or hard-left will probably be noticeable to you, and drive you to lower the low-pass frequency for the LFE channel.

That's the right thing to do for a traditional subwoofer, of course. You want the low-pass filter set no higher than 80Hz or 100Hz. That's true for distributed subs in a multisub arrangement too. Only the red areas in the chart below get sent to traditional subs and distributed subs. But flanking subs serve a little bit different purpose. They're run higher than normal, and so can be localized if they're too far away from the main speaker they're flanking.

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