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Subject: Two Subwoofers

Posted by [Malfoy](#) on Fri, 27 Jul 2018 11:58:01 GMT

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I watched a free concert in the park lately. They used 2 big speakers at both ends of the stage. I would assume that these speakers have a built-in subwoofer.

I'm wondering whether having 2 subwoofers in the home will make a difference in terms of sound quality compared to just one subwoofer.

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Subject: Re: Two Subwoofers

Posted by [Wayne Parham](#) on Fri, 27 Jul 2018 13:40:25 GMT

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Outside and inside are very different.

Outside, you want all sources to combine coherently. This means you want sound sources grouped together, and their acoustic centers aligned.

When two subs are placed at each ends of a stage, bass suffers from comb filtering caused by interactions between the subwoofers. Path length differences cause sound to combine destructively. Where the path lengths are the same - in the center - sound combines constructively and bass is strong. But off-center, at an angle, one subwoofer is closer to the listener than the other sub, so sound doesn't combine coherently. At some angles, bass is strong and at other angles, bass is weak. The "weak angles" are where path length differences cause a 1/2 wavelength shift. The strong angles are where the shift is a full wavelength.

This is sometimes referred to in the prosound world as "power alley." Bass is only good in the center but at the sides, hot and dead lines form. Picture the radiation pattern like your hand with fingers stretched apart; Your hand is the stage and your fingers point out into the audience with middle finger right down the center. Fingers are where bass is strong, in-between is where the bass is weak.

So outdoors, it's better to cluster subs close together in the center.

Indoors is just the opposite. We cannot possible get all sources to combine coherently because of all the reflections from the walls, floor and ceiling. All the interactions of reflections sort of fold those fingers in on themselves and form a checkerboard pattern of hot and dead spots at low frequencies. These are called room modes.

So outdoors, it's better to distribute subs around the room. This is called a multisub arrangement. Multisubs and Flanking Subs

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Subject: Re: Two Subwoofers

Posted by [Malfoy](#) on Wed, 01 Aug 2018 03:28:54 GMT

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Thanks for the quick lesson, I appreciate that. What you just explained made sense to me because my body was feeling the vibration when I was in front of the speaker, but not when I was at the side of it.

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