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Subject: Re: 2 PI - maximum volume to avoid Helmholtz standing waves

Posted by [Wayne Parham](#) on Mon, 14 Jul 2014 15:00:27 GMT

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The bookshelf version is small enough that standing waves are in the upper midrange where the insulation is pretty effective. They're damped very well. But larger boxes (like the tower model) have standing waves in the lower midrange and upper midbass where the insulation really doesn't do much. So it becomes more important that the midwoofer and port be placed in positions where standing wave modes don't line up on a pressure node.

With careful positioning of the midwoofer, port and stuffing, you can usually prevent midrange ripple. But worst-case placement can cause pretty nasty response. So if you design a tower cabinet or other large box with midwoofer run through the midrange, it's best to model it and find best locations, and then build a physical model and measure it to validate the design.