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Subject: Quarter wave ported box?

Posted by [Bob Coley](#) on Thu, 17 Jan 2008 00:47:43 GMT

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Is there an SPL advantage if you built a ported enclosure that has the port 1/4 wave length from the center of the speaker cone? In other words, all else being equal, if you have a ported box tuned to 50 hz and you position the port about 66" away from the center of the driver, would it make a difference vs positioning the port some other place?

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Subject: Re: Quarter wave ported box?

Posted by [Wayne Parham](#) on Thu, 17 Jan 2008 03:11:30 GMT

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Yes it does matter where the port is placed, particularly in the situation you describe. You can definitely have both Helmholtz resonance and quarter-wave standing wave resonance, simultaneously. Martin King has a spreadsheet that is designed to model this exact scenario, so you might want to download it and explore your options if you are considering this kind of system.

talking about. I wanted to position the port and driver to minimize quarter-wave resonances, so that the only thing that had influence was Helmholtz resonance. Sounds like you want to maximize quarter-wave resonance in addition to Helmholtz resonance. To me, the two mechanisms are pretty similar really. The standing wave nodes of a horn or pipe act much the same as Helmholtz resonance, so neither is "better" to me. I make horns, which are very similar to standing wave pipes, essentially a wide-band form of them. I also use bass-reflex speakers, which use Helmholtz resonators. The only reason I wanted to limit the standing wave nodes in

the box. But since the box is tall and thin, standing waves will result inside and I wanted to position the elements where the nodes had the least influence. With Martin King's spreadsheet I was able to accomplish this, and measurements of impedance and response show it is purely a bass-reflex box as a result. If I hadn't placed the driver and port in the right position and used damping material in the box, the speaker may have had unintended resonances that made it act differently than I had intended. So I was impressed with the ability of the MJK spreadsheets to model the effects of standing waves inside the box. Martin King's website: [Quarter-Wave.com](http://Quarter-Wave.com)