
Subject: Re: Golden ratio for loudspeaker cabinets

Posted by [Wayne Parham](#) on Mon, 11 Oct 2010 20:09:51 GMT

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The suggestion to use Golden Rule dimensions is intended to break up internal standing waves so a dominant mode doesn't emerge, having harmonics repeated in more than one dimension. The idea is to use approximately Golden Rule proportions for height, width and depth of a sealed or vented box. I say approximately, because I find that ratios from 1.5 to 1.7 work just as well as the exact golden rule value of 1.618-to-1.

It's a good idea in general, but it is also important to realize that the distances between internal boundaries and the driver (and port, if vented) are important too. So while it's a good place to start - an initial "blind" estimate - if the cabinet is large, it's probably safer to verify by measurements. There are some cases when Golden Ratio proportions don't work, or at least, not when the ratio is the only thing that is considered.

Note that this really only applies to full range "main" loudspeakers and isn't an issue in subwoofer more. So if the woofer is going to pass some lower midrange and the box is large enough for standing waves to develop inside, that's when you have to be concerned about them. A subwoofer in a relatively small box (less than about 10ft³), then standing waves aren't an issue.

Standing Waves
