
Subject: Re: LAB12 driver - why is it so good and efficient?
Posted by [Wayne Parham](#) on Thu, 16 Apr 2009 22:58:17 GMT
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Hornresp simulations of basshorns have been very accurate for me. Below 200Hz, the driver operates as a rigid piston so the mathematical models David uses in Hornresp predict the response very accurately. The low-pass acoustic filter of the front chamber and the folds tends to suppress output up high, so in a basshorn, most of the output is from pistonic cone motion. As a result, the measurements of physical models usually correlate very well with the simulations from Hornresp models. At higher frequencies, from midrange up, the diaphragm begins to flex. The cone no longer acts as a rigid piston, instead, parts of the cone become decoupled and operate independently, like smaller diaphragms with less mass. This makes the response at higher frequencies different than what a rigid piston would produce. It usually has more output than expected. Some cones that are pretty well damped have relatively smooth response in this region, but many become jagged up high. As a result, I find that midhorns should be built and measured to know the high frequency response. The Hornresp model does a pretty good job of predicting response at the low end, but it doesn't have the input data to predict what happens up high. That would require more sophisticated FEM models.
