Subject: Re: Trapezoid enclosures
Posted by Wayne Parham on Mon, 19 Sep 2011 19:32:12 GMT
View Forum Message <> Reply to Message

In general, you can make the shape of the cabinet anything you want. The bass tuning doesn't care, unless it becomes very long and thin, in which case pipe modes setup in the bass, making it a transmission line. But in general, you can make the shape anything you want and that won't change bass response.

But this isn't true at higher frequencies. Midwoofers used in cabinets this size have standing waves in the midrange. Maintaining the Helmholtz frequency keeps the bass response right, but the midrange will be changed when you change cabinet shape, or even the positions of the drivers and port within the cabinet.

It is widely believed that trapezoid cabinets have a tendency to stagger standing wave frequencies, but depending on that really gives a DIYer a false sense of security. It's true, but it doesn't really matter. It only takes one standing wave mode in the midrange to mess up response, and to tell the truth, that's usually the case. So even if you use a cabinet like that, you really should make measurements to see what the response looks like.

The real benefit of the trapezoidal shape is in prosound, where sometimes it is desirable to splay cabinets. You can hang a number of trap cabinets to form a curved line array. Beyond that, I don't see any real benefit. But if it looks cool to you, then go for it. Just be sure to make measurements of your loudspeaker, looking in particular for peaks and dips in the 80Hz to 200Hz range. If it has some, rebuild with the drivers and ports in different places.