Subject: end correction
Posted by loudnclear on Tue, 08 Jul 2008 19:53:36 GMT
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I have noticed that bass horns are sometimes shortened and made smaller more than the design theory would predict, yet still give good results. Searching yields info on something called end correction. Anyone heard of this before?

Subject: Re: end correction
Posted by Wayne Parham on Tue, 08 Jul 2008 23:25:19 GMT
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End correction is a phrase that describes the virtual path length of a horn in excess of its physical length. It is similar to the corrected length of a port in a Helmholtz resonator. Depending on mouth area, the added virtual length can be fairly substantial.

I suggest using Hornresp to model a basshorn. It will take this into account, and it will also allow you to enter the space the horn is operating in, i.e. freespace or more likely halfspace (on the ground), quarter space (on the ground, back against a wall) or eighth space (in a corner). The more constrained the radiating angle, the less impedance macthing is required. So a smaller horn works better when radiating into a smaller angle.

That said, truncated horns always produce more response ripple than properly sized horns. They also tend to be less efficient. You can minimize ripple with various techniques, but none of them improve efficiency.

The usual method is to cancel standing wave nodes from the mouth reflection using some form of self-cancellation notch, usually from driver or fold position. This is not unlike the techniques described by Martin King to reduce the harmonic ripple in a quarter-wave pipe. In fact, the more truncated a horn is, the more it acts like a quarter-wave pipe, so they share some features. It's like a continuum of alignments from straight pipe to tapered pipe to horn.

Basshorn or Transmission Line

Subject: Re: end correction
Posted by loudnclear on Thu, 10 Jul 2008 19:54:39 GMT
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Thanks for the info and links, Wayne. I came to the right place!