Subject: Re: Advice building bass cab
Posted by Wayne Parham on Fri, 20 Aug 2010 18:20:27 GMT
View Forum Message <> Reply to Message

Vtotal is based on outside dimensions and Vb is interior dimensions minus offset from driver displacement.

I generally use a Helmholtz calculator to determine the port frequency and then calculate internal standing waves based on distances to boundaries, the internal cabinet walls. More recently, I've used the Martin King spreadsheets to find the influence of internal standing waves. However, if you will only be using the box at low frequencies, you won't need to worry about that. Helmholtz resonance is all that will matter.

Since this is for a bass guitar cabinet, I think you'll probably operate the cabinet at relatively high frequencies but internal standing waves may or may not be objectionable to you. Musical instrument speakers generally have their own distinctive sound. They aren't designed to necessarily be "flat", and rarely are. So I cannot say how you will want to approach that, I can only tell you that internal standing waves tend to become more an issue at higher frequencies, midbass to midrange frequencies on up. That's where port and driver position within the box start to matter.

There are plenty of T/S simulation programs that will calculate Helmholtz frequency and plot predicted response. But if you're curious, here is the Helmholtz formula:

Here's a little BASIC program that will calculate the formulas for you, if you can still find an old BASIC interpreter around somewhere.

```
10 INPUT"Enclosure Volume";VE
20 INPUT"Diameter of Port";PD
30 INPUT"Length of Port";PL
40 VB=VE*1728:PI=3.1415926535:AP=PI*((PD/2)^2):LC=PL+((8*PD)/(3*PI))
50 FR=(13548/(2*PI))*(AP/(VB*LC))^.5
60 PRINT"Fr =";FR;"Hz."
70 GOTO 10
```