

---

Subject: Re: Yes and no.

Posted by [roncla](#) on Wed, 12 May 2004 01:58:40 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

The volume of air that exists between the back of the driver and the horn throat is called the cavity of the horn. Any enclosed volume of air with a port (in this case, the throat of the horn) will act as a 1st order low-pass filter where: Upper cut-off frequency =  $c * A_t / (2 * \rho * V)$  Where: V = Volume of cavity  
A<sub>t</sub> = area of port, i.e. horn throat area  
c = Speed of sound  
In two-way horn systems where the front of the driver loads a mid-horn, and the back loads the bass horn, it is of great importance that the dimensions of this cavity be calculated correctly. This is to ensure that there is a mechanical crossover between the two horns. However, in a back-loaded-only system such as this, it is really not that critical. The cavity's only mission here is to create a roll-off from a frequency where wavelength = an odd multiply of the horn's length, to avoid annulling when the out-of-phase waves from the back of the driver meets the in-phase waves from the originating at the front of the driver. We want to load ca 3 octaves into the horn (40Hz-320Hz). Theory then prescribes a relatively small cavity (ca 1,5 litres, space taken up by driver included) which also ensures good coupling of the cone's movements to the horn.

---