Subject: Re: Horns and Room Size
Posted by Bill Fitzmaurice on Thu, 21 Oct 2004 11:32:13 GMT
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'A basshorn can be made considerably smaller if used in a constrained environment than it would be if used in freespace'.To expand on Wayne's statement any room will get both boundary loading (if the speaker is placed close to a wall or corner) and cabin gain, which kicks in at 12dB/octave where the longest room dimension is about a half wavelength. A room with the longest dimension at 12 feet will get cabin gain from about 47 Hz, which means that you don't need to build a horn with an Fc of 20 Hz to get response to 20 Hz; 45 Hz or so will do nicely. When you account for cabin gain and boundary effects in the design process you can make basshorns quite small. With the extreme amount of cabin gain available in a car trunk it actually makes it an ideal place for a relatively small basshorn. Going to your question, what traditionally limited the use of horns in small rooms was their physical size, not their sound, but today designers like myself are coming up with horns that take advantage of both boundary and cabin gain to create bass horns small enough for even the smallest rooms, including automobile trunks.