Subject: Sub for Heresy's
Posted by Shane on Tue, 22 Jan 2008 19:55:52 GMT
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I'm thinking about adding a sub this summer to help my Heresy's reach more of their potential. The Heresy's roll off pretty easily and I believe the specs for it are around 55hz. Any ideas for a relatively similar sized sub (powered is fine)?Wayne--do you have any smaller sub designs in the books?

Subject: Re: Sub for Heresy's
Posted by Wayne Parham on Tue, 22 Jan 2008 20:46:29 GMT
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use a larger box (about 10ft3).

Subject: Re: Sub for Heresy's
Posted by Shane on Tue, 22 Jan 2008 22:07:31 GMT
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Basically build a bottom end of the 3pi or 4pi with a built in amp? I wonder if it would be suitable to make it so the Heresy's could sit on top of the cabinets?

Subject: Re: Sub for Heresy's
Posted by Wayne Parham on Tue, 22 Jan 2008 23:03:49 GMT
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bass-reflex box tuned to 30Hz. I'll send you the plans and you can see if one of them will work for you.

Subject: Thanks!
Posted by Shane on Wed, 23 Jan 2008 00:24:36 GMT

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Subject: May I have the plans also?
Posted by Patrick Kopson on Wed, 23 Jan 2008 02:45:13 GMT
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Thank you.

Subject: You've got mail!
Posted by Wayne Parham on Wed, 23 Jan 2008 03:15:01 GMT
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Subject: Glad to do it
Posted by Wayne Parham on Wed, 23 Jan 2008 03:19:52 GMT
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Subject: 7Pi bottoms
Posted by Shane on Thu, 24 Jan 2008 03:37:15 GMT
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Wayne, what is the low end on your 7pi bottoms? I'm wondering if these would work as a compliment to the Heresy's with a little xover tweeking. Change the dimensions some to work with the cabinet dims of the Klipsch's (15.5" wide x 13.25" deep). I could then biamp running one to the Heresy's and one to the bottoms. I'm basing this purely on asthetic reasoning as I'm not looking to listen to movies or anything with these so I'm not sure I'd need a "pure" sub. Just a rambling thought.

Subject: Room gain, pressure region, modal region and reverberent region
Posted by Wayne Parham on Fri, 25 Jan 2008 02:53:43 GMT
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corner loading.

See the charts below. The first one is the response of the cabinet if it were placed in free space. It is overdamped and has a gradual rolloff curve. It needs to have a curve like this because lower frequencies below the modal region tend to pressurize the room rather than develop standing waves. This causes bass boost and would make the speaker to sound boomy if it didn't have this resonse curve. The second curve shows response with room gain.

Bass response without room gain

Bass response including room gain

There are three distinct frequency ranges in a room and sound acts differently in each of these regions. The first region is the pressure range where the room is uniformly pressurized, below about 20-30Hz. The second region is the modal range where standing wave nodes form, between 20-30Hz and 150-200Hz. The third region is the reverberent range, above about 200Hz.

The pressure mode is at low frequencies with wavelengths longer than any dimension of the room. This causes a uniform bass boost of approximately 12dB/octave. Boost is greatest in small, tight rooms and least in large rooms with lots of open doors.

The next region is the modal range where at least one dimension of the room develops standing waves. The modal range usually starts around 20-30Hz and ends around 150-200Hz. In the modal range, pockets form throughout the room in 3D space where bass notes are either louder or softer, depending on frequency and position. Standing wave nodes constructively or destructively combine to form the pockets of louder or softer bass.

Standing wave modes are spaced far apart at the lowest frequencies of the modal range, which makes them the most noticeable. As frequency rises, the separation between modes gets closer and closer to a point where you can't tell them apart. When the bandwidth of each node is wider than the separation between nodes, there is no longer any clear distinction between nodes. Above this point, called the Schroeder frequency, the sound in the room forms a reverberent field.

Subject: Re: Room gain, pressure region, modal region and reverberent region
Posted by Shane on Sat, 02 Feb 2008 21:33:13 GMT
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Thanks Wayne. Although I think the addition of the bass bins would work and be asthetically pleasing, the sub would be an easier build. On the other hand, if I build the bass bins, I can always upgrade to the full fledged speaker