Subject: Floor Bounce ?
Posted by Wayne-o on Wed, 07 Jan 2009 07:49:23 GMT
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Can you explain this floor bounce ? how far up or down the driver has to be? Thanks

Subject: Re: Floor Bounce ?
Posted by Wayne Parham on Wed, 07 Jan 2009 17:25:05 GMT
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Floor bounce is a reflection from the floor that creates a self-interference notch. It usually occurs between 100Hz and 200Hz, but is totally dependent on the height of the speaker and the distance to the listener. What causes it is a path length difference between the direct sound and the sound

response.

Another troublesome self-interference notch is the one that results from the reflection off the wall behind the speakers. This one is usually even more of a problem than the floor bounce notch, and often harder to deal with. The best approach is to avoid these problems altogether, using a constant directivity cornerhorn. There is no self-interference notch from the nearest boundaries because they are acoustially close, truly a launch-point for the sound. The next best thing is to use helper woofers to smooth the sound field using a flanking sub configuration.

I should make clear that these self-interference notches in the midrange are are distinguished from higher-frequency reflections, which act differently. The wavelengths involved make HF reflections blend together with statistical averaging rather than forming well defined modes. That's the difference between the way sounds interact with the environment above and below the Schroeder frequency. Below, reflections form standing waves that make interference modes spaced far enough apart to indentify. Above, the modes become so dense you can't hear distinct frequencies with peaks and notches. The reflections all blend together to form a statistically-averaged uniform sound field. The interference is still there, but it is so dense the modes become indistinguishable.

I would suggest limiting HF radiation to fairly narrow vertical angles, where possible, to reduce the reflections from the ceiling and floor. But they don't make a single frequency notch like the one down in the lower midrange. They just sound unnatural, especially when coming from above. Usually the floor reflection is reduced with carpeting but the ceiling reflection can be a problem when speakers are used that don't limit the vertical radiation angle. Sometimes a bad HF ceiling reflection makes a slapping or ringing sound, sort of like a golf club ping.