
Subject: In-wall Baffle

Posted by [giverago](#) on Fri, 15 Apr 2011 01:35:10 GMT

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Im going to be using (3) 3pi speakers in LCR behind a perforated screen. The speakers will be about 14" away from the wall. Is there an advantage to creating a baffle like the THX baffle that will surround all the speakers? I would use something like 1/2MDF and 1" foam.

Subject: Re: In-wall baffle

Posted by [Wayne Parham](#) on Fri, 15 Apr 2011 02:47:29 GMT

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Flush soffit mouting is a good thing because it eliminates the (baffle step) directivity transion from freespace to halfspace radiation. Anytime there is a directivity change, there is a corresponding change in on-axis response. This assumes power response is constant, of course, but it almost always is at the frequencies where the baffle is approximately wavelength scale. So the bottom line is, yes, soffit mounting is a good thing.

On the other hand, it is important to understand that the frequency where the baffle would begin to introduce directivity on a loudspeaker this size is down in the modal range in most rooms. So room modes are making directivity ambiguous anyway. This is the case in all but the largest rooms. What you might gain from smoothing the baffle transition is made moot by room modes. The best thing for this is to use multiple subwoofers.

Beyond this, probably the largest benefit of soffit mounting is the fact that there cannot be any self-interference from the wall behind the speakers, because they are mounted flush with that wall. This reflection is almost always the most troublesome in free-standing loudspeaker setups. It usually occurs in the lower midrange, and the notch is often very large, on the order of 20dB.

Self-interference from near boundaries is sort of like a room mode, in that it is caused by a boundary reflection. But it is not a standing wave, like room modes are. Room modes still exist, even when speakers are soffit mounted, flush in-wall. So multisubs are still recommended.

Subject: Re: In-wall baffle

Posted by [giverago](#) on Fri, 15 Apr 2011 05:17:18 GMT

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That might work for my theatre as it is a open concept, how does multiple subwoofers work if using horn-loaded subs? The ceiling height is 9 feet above the theatre and 8' everywhere else.

File Attachments

1) [Room.jpg](#), downloaded 3817 times

Subject: Re: 3pi wall baffle

Posted by [Wayne Parham](#) on Fri, 15 Apr 2011 12:27:16 GMT

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Horn loaded subs are no different where multisubs are concerned. You can use multiple horns too. They're just bigger.

Subject: Re: 3pi wall baffle

Posted by [giverago](#) on Fri, 15 Apr 2011 16:14:42 GMT

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By looking at the drawing of my basement would you recomend a baffle?

Subject: Re: 3pi wall baffle

Posted by [Wayne Parham](#) on Sat, 16 Apr 2011 03:14:21 GMT

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Again, flush soffit mounting will prevent a directivity change at low frequency. But in rooms this size, the directivity shift occurs in the modal range, so it doesn't buy you much. Best to run multiple subs, especially since your room is square.
