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Subject: Re: directivity

Posted by [Earl Geddes](#) on Mon, 08 Aug 2005 14:15:52 GMT

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Thanks for the post - better late than never. First, CD from 350 Hz up at any reasonably narrow coverage is pretty much impossible. If you are talking about say 180 degree coverage, then I could believe it, as its pretty easy to get very wide CD coverage. The trick is CD coverage at about 90 degrees or less, which is what is required to avoid early lateral reflections. This could almost never be done down to 350 Hz in a small room due to the source size. If you have data to show otherwise, I'd love to see it. I strongly disagree that "lateral early reflections are all right since they are processed bi laterally by the ears". First, if the lateral reflection arrives at the same ear as the direct sound, then no amount of auditory processing can affect it since the two waves are mixed before they even enter the ear canal. A lateral reflection to the opposite ear from the direct sound is less offensive because of processing as you say. But, the opposite ear situation is the I sees common in most situations. Vertical reflections cannot influence image since imaging is strictly a horizontal process. So the situation is this; vertical reflections mostly affect coloration and horizontal reflections mostly affect imaging, although they do also affect coloration. This is why I am of the opinion that horizontal reflections are the more damaging. THX would presumably spec a lower directivity in the vertical plane because virtually all small rooms have a lower ceiling to floor distance than sidewalls. In all my designs I correct for both, but it is my experience that the lateral early reflections are the most critical. About the Toole work. First, I don't think that his paper did show a preference for wider dispersion types. Would you please quote the article if you think that this is so - I have read and poses them all. Second, Floyd's work at the NRC never involved music, only noise and impulses. So determining a preference for directivity on music would not have been possible.

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