Subject: Puzzled - Please help
Posted by AudioNovice on Thu, 14 Jan 2010 05:33:27 GMT
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I apologise for this stupid question.

I have a Sony System (LBT-XB88AV with SS-XB88V speakers, 4 way, 4 channel, bass reflex) manufactured in late nineties. I had connected the speakers with correct polarity but never noticed the Right and Left markings denoting the right and left speakers. I suffered a lot with unrealistic bass and very noisy mid to high frequency. The sound will crack even at 10 db cut at 4 KHz and 16 KHz bands and would marginally improve with a 6db cut on 1 KHz band (alongwith 10 db cuts on 4 KHz and 16 KHz). After being driven to frustration and finding nothing else to do I interchanged the speakers. The sound changed with deeper and more realistic bass and much smoother sound quality, on top of that I thought (don't laugh) I could visualise the instruments (not too clean, but at least it's something for me!). I thought the perception that I was listening to better quality sound was purely mental. However yesterday I found the R and L marks on the backside of the speakers and I had unknowingly placed the "R" on the right hand side and the "L" on the left hand side. I fail to understand why it happened as speakers are passive devices (at least mine are) and are supposed to be identical.

Can anyone tell me if there is any scientific basis of getting to hear better quality music after placing the speakers on the correct sides as marked on them?

Subject: Loudspeaker directivity, room coverage and imaging
Posted by Wayne Parham on Thu, 14 Jan 2010 15:03:17 GMT
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I don't know that particular model of speaker but the right and left designations could be related to directivity. All speakers generate a sound field that has different spectral balance depending on the listeners position.

Most speakers are made to be balanced directly in front, and usually less so above and below and to each side. They're almost always worse in the vertical, but since listeners rarely move up and down (except for sitting verses standing), as long as the pattern is good through a 40° vertical arc, the pattern is useful and coverage is good. In fact, you don't want much sound at large vertical angles, particulatrly at higher frequencies, because they only serve to create unnatural ceiling reflections.

Some speakers are designed to create a uniform sound field over a specific coverage angle. Prosound speakers usually are intended to focus the sound more in a smaller arc, often 40° to 60°. This allows them to be placed to cover a specific area. Home hifi and theater speakers are usually made to cover a wider horizontal arc, often 90° and sometimes even 120° (usually for theaters and other large, wide rooms). In most cases, the arc is symmetrical about the baffle normal, meaning it spreads as wide to the left as it does to the right.

Some speakers are designed to create a pattern that goes further one direction than the other

relative to the baffle normal (straightforward). The idea is to face the speakers such that the pattern is directed inward, away from the nearest sidewall. These kinds of speakers are definitely labeled "left" and "right" because they generate a pattern suitable for that placement. Usually, speakers like this are faced forward, letting the directivity of the speaker point the pattern inward. More traditional speakers are usually toed in to produce the same coverage pattern.

Imaging, placement and orientation

Subject: Re: Puzzled - Please help
Posted by AudioNovice on Fri, 15 Jan 2010 06:48:52 GMT
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Thank you very much for your reply. I am inclined to accept the asymmetric construction as the real explanation. Could you pls explain why someone would adopt the asymmetric design approach?

The speakers have:

a) Sub woofer: 17 cm dia, cone type
b) Woofer: 20 cm dia, cone type
c) Tweeter: 6 cm dia, cone type
d) Super tweeter: 2 cm dia, cone type

Subject: Re: Loudspeaker directivity, room coverage and imaging
Posted by Wayne Parham on Fri, 15 Jan 2010 14:20:08 GMT
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The reasons and benefits of controlled directivity and the coverage pattern I described are described in the link in my last post. There is also some discussion about the things needed to make it work.
