Subject: Bose Line Array
Posted by audiomagic on Wed, 23 Sep 2009 23:32:41 GMT
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Have any of you guys checked out this L1 system that Bose is selling.
http://www.bose.com/controller?url=/shop_online/speakers/portable_amplification_systems/l1_compact/index.jsp

It looks like they're using drivers a little over 2" at different angles. How do you thnk these angles would affect the wavefront? They claim 160 degree horizontal dispersion over a broad range of frequencies. I'm going to tackle a similar project with a bunch of 2" drivers and some 3/4" tweeters. I planned to use as many 2" drivers I could fit in a 7 1/2 foot line but instead of angling the woofers I would splay tweeters on both sides at angles due to the fact the high frequencies are more directional. The enclosure will be constructed of 4 or 6" PVC with small pieces of 2 inch PVC cut off with a 4.5" or 6.5" hole saw and glued to the large PVC upright. This would be used for small pro sound venues and would more than likely be supplemented by a small sub-woofer.

A line array would have some major advantages due to lack of vertical reflections and lack of acoustic decay compared to a conventional design.

I'm new at line arrays so any input into this design would be greatly appreciated.

Subject: Re: Bose Line Array
Posted by Marlboro on Thu, 24 Sep 2009 00:48:56 GMT
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Alright.... this is what I would say.

But I am not a sound engineer or an electrical engineer. To get a technical opinion you would need to ask Jim Griffin or Wayne Parham, or Bill Fitzmaurice or one of the engineers.

These are described as being used for an AUDIENCE. This means that they are not designed to be listened to in the nearfield. My line array was designed for that. Maybe the issues they are trying to solve are farfield issues.

I can only say that what they say the system fixes, ISN'T BROKEN when listening in the nearfield.

What do other people say? Dark Moebius, Wayne, Rick Craig? I defer to the engineering people.

Marlboro

Subject: Re: Bose Line Array
Posted by selahaudio on Thu, 24 Sep 2009 02:10:47 GMT
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audiomagic wrote on Wed, 23 September 2009 18:32Have any of you guys checked out this L1 system that Bose is selling.
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It looks like they're using drivers a little over 2" at different angles. How do you thnk these angles would affect the wavefront? They claim 160 degree horizontal dispersion over a broad range of frequencies. I'm going to tackle a similar project with a bunch of 2" drivers and some 3/4" tweeters. I planned to use as many 2" drivers I could fit in a 7 1/2 foot line but instead of angling the woofers I would splay tweeters on both sides at angles due to the fact the high frequencies are more directional. The enclosure will be constructed of 4 or 6" PVC with small pieces of 2 inch PVC cut off with a 4.5" or 6.5" hole saw and glued to the large PVC upright. This would be used for small pro sound venues and would more than likely be supplemented by a small sub-woofer.

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I'm new at line arrays so any input into this design would be greatly appreciated.

Here's a picture of an array that I helped build for my church. This is probably larger than what you may need (sanctuary seats 1,000)but you could build the same thing on a smaller scale. The design is based on the CBT (constant beamwidth technology)research of DB Keele.

File Attachments
1) CaryArray2.jpg, downloaded 469 times

Subject: Re: Bose Line Array
Posted by audiomagic on Thu, 24 Sep 2009 11:37:21 GMT
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That's massive!!! What size and how many drivers? I thought about curving the front baffle of course mine would curve the other direction but I wanted to keep things as compact as possible. I'm assuming if I wanted to curve the array for time alignment with a 7.5' line that would be quite a curve. I'm also not sure what the consequences of a curve would be in the far field and how it would affect the vertical dispersion.

Subject: Re: Bose Line Array
Posted by selahaudio on Thu, 24 Sep 2009 11:52:29 GMT
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audiomagic wrote on Thu, 24 September 2009 06:37That's massive!!! What size and how many drivers? I thought about curving the front baffle of course mine would curve the other direction but I wanted to keep things as compact as possible. I'm assuming if I wanted to curve the array for time alignment with a 7.5' line that would be quite a curve. I'm also not sure what the consequences of a curve would be in the far field and how it would affect the vertical dispersion.

56 5" woofers and 22 ribbon tweeters. The beauty of this design is that you can control the coverage extremely well. I don't have a picture but we also built three smaller ones for stage monitors.

As far as your idea on the Bose design I don't know how well that would work. You could try building a prototype and see how it performs.

Subject: Re: Bose Line Array
Posted by AudioFred on Thu, 24 Sep 2009 12:17:47 GMT
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Some might be surprised to hear me saying this, but the Bose line array is an excellent product because it does the job it's intended to do very well. It is intended for use in smaller venues as a substitute for the traditional two way 15" woofer plus horn tweeter pro audio standmount enclosures used by musicians. These cabinets are large and heavy, they require a separate mixer and amp, and they are an overkill for the typcial restaurant or bar gig. Setting them up is a pita. The Bose is compact and light, making it easy to carry, and it sets up in about a minute. It will play loud enough for a small venue, and it doesn't sound overly loud to the band when it is set up directly behind them. I saw some specs somewhere, and I believe I saw the hf extension is to about 12khz, which is fine for a restaurant or club gig. Like most Bose products, to me it seems overpriced for what it is.

The characteristics that make this a good product for its intended purpose are either irrelevant (easy set-up) or counter productive (limited dynamic range, comb filtering, etc) for a home audio system.

Subject: Re: Bose Line Array
Posted by audiomagic on Thu, 24 Sep 2009 12:39:12 GMT
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I'm shooting for small venue pro sound with this design.

Subject: Re: Bose Line Array
Posted by selahaudio on Thu, 24 Sep 2009 12:52:39 GMT
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The new JBL CBT arrays are aimed right at the Bose systems in terms of cost. You can read about them here http://www.jblpro.com/catalog/general/ProductFamily.aspx?FId=89&MId=2

Looks like in the coaxial system they are using a 1" dome. Nice to know that I helped design the first CBT arrays installed in the USA

We used a passive tapering arrangement and the curve applies the delay. If you run a straight column you would need to go active in order to control the delay along the length of the line.

Subject: Re: Bose Line Array
Posted by audiomagic on Thu, 24 Sep 2009 13:48:10 GMT
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Jbl claims their system to be passive do you think they require multiple amp channels. They have a straight line. What's your opinion on varying the intesity from center and top to bottom of line? Or varying frequency.

What exactly is the theory behind the Constant Beamwidth Technology compared to other designs?

Subject: Re: Bose Line Array
Posted by selahaudio on Thu, 24 Sep 2009 14:58:26 GMT
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audiomagic wrote on Thu, 24 September 2009 08:48Jbl claims their system to be passive do you think they require multiple amp channels. They have a straight line. What's your opinion on varying the intesity from center and top to bottom of line? Or varying frequency.

What exactly is the theory behind the Constant Beamwidth Technology compared to other designs?

See http://www.xlrtechs.com/dbkeele.com/papers.htm and scroll down to the CBT papers

JBL's design operates with a passive crossover so all you need to do is bi-amp with adding your own subwoofer. I would guess that they use resistors to taper the output but with the line being short and straight it would be much different than what we did. The AES papers will answer your questions better than I can. All I know is that it works and is the best line array approach I've seen for pro audio applications.
