Subject: Line array benefits
Posted by Marlboro on Thu, 03 Sep 2009 23:48:25 GMT
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The major benefits are as follows:

1. Frequency response dips and bumps tend to smooth out. And because there are some many of the speakers, each speaker may have limited output in the upper treble or the lower bass, but all speakers put out something in those areas. If you put enough of them together you can actually get some decent response in the areas even if the individual speakers don't have much to give. Not all speakers, even the exact speaker have the same frequency response. Ragged response patterns tend to smooth due to many speakers.

2. All arrays whether with really cheap speakers(5 cent for example) or expensive($49 for example) have decreased distortion. Decreased distortion increases airiness, openness etc. Power handling goes up dramatically. 32 dome tweeters in a line array might give you a 450 rms watt per channel protection.

3. All arrays have vastly increased dynamic range and increased sensitivity. Increasing the dynamic range in the tweeters is important to match the increased dynamic range offered by the midranges.

4. Size: One of the benefits of an array is the coupling of the speaker to the ceiling and floor.

5. They may not need a sub woofer, or even a woofer to play deep. A combination of 12 7 inch mid woofs have a huge amount of bass, with very low distortion(provided the 7 incher actually has some sound production in the range that you are talking about).

6. Sound dispersion and sound stage. Arrays produce a level of sound stage and sound dispersion that just has to be heard to appreciated. Array sound presents in the near field. Failure to have a tweeter array reduces the sound dispersion and stage experience in those frequency ranges.

7. Because array sound represents in the nearfield(as opposed to the far field for all point source speakers), the concept of reflections from walls and floor is almost non-existent. Also the Haas effect tends to have the brain disregard any reflective sound that comes withing 40 msec from the primary sound, which is what happens with a line array listened to in the near field.

8. Baffle compensation distortion is reduced to less than 1 db when the numbers of speakers in a line exceed 15(according to software which calculates this.

Disadvantages.

1. They can be expensive. Even an inexpensive array is going to cost around $500 - 700 for the speakers, plus the building. An expensive one might cost as much as $2000-3000 just for the multiple speakers, and the whole system a lot more when you add the amplification.

2. They often require extra amplification and electronic crossovers since its hard enough to build

a quality passive cross for a point source. Its harder for a passive design, though for a skilled crossover builder, this is less of an impact.

3. The cabinetry is long and can often be a nightmare with the number of enclosures and holes that have to be cut.