
Subject: Array Speaker vs a high efficiency horn?

Posted by [James W. Johnson](#) on Mon, 05 Jul 2004 23:00:50 GMT

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I'd like to know what you Array gurus take is on an Array Speaker vs a High Efficiency speaker? I am planning on building a new speaker and have an offering from both designs on my plate.

Subject: An array speaker is high efficiency.

Posted by [Bill Fitzmaurice](#) on Tue, 06 Jul 2004 19:12:09 GMT

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The main advantage to an array is the ability to control directivity, plus you can get high sensitivity from a relatively compact box. The disadvantage is the high cost of using a lot of drivers, though that can be gotten around if you find a decent closeout deal. A horn has the advantage of being able to get high sensitivity from a single driver but construction is far more complicated and the box can be quite large. Which to go with depends on your goals and how you want to best achieve them. My current HT setup has a folded horn sub and array satellites, each chosen to take advantage of the particular advantages of each design.

Subject: Re: Array Speaker vs a high efficiency horn?

Posted by [Jim Griffin](#) on Tue, 06 Jul 2004 19:29:37 GMT

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James, As you may have read, I'm a believer in near field line arrays. From the sensitivity viewpoint you get array gain of $10 \log$ (number of drivers) so, for example, with 10 drivers you have an array gain of 10 dB above each individual driver. Depending on what the array impedance is (function of series parallel connections) and if you need to compensate for the baffle step, you can increase or decrease the sensitivity. Let me add that for a near field line array (see my white paper for the near field definition), you can yield an in-room improvement vs. a point source loudspeaker. This is because the near field sound fall off per doubling of distance from the source is 3 dB vs. 6 dB for far field radiation. That means that if you have a 94 dB 1W/1m sensitivity near field line array, then at 4 meters (~13 feet) listening distance it would have the same radiated energy at the listener as a 100 dB 1W/1m point source. Bottom line is that a near field line array will exhibit almost constant sound radiation within the room. Jim

Near Field Line Array White Paper