Subject: Re: A few questions
Posted by Jim Griffin on Fri, 12 Mar 2004 02:04:07 GMT
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Let me chime in to try to address a couple of issues. In pro sound applications line arrays operate in both their near and far fields. The goal is to cover much of the close up floor seats with the near field yet throw the far field into the cheap seats in the rear or balcony. Now in the near field you have only a 3 dB per doubling of distance sound falloff so you don't blast the folks in those expensive seats up front. Yet you can cover the distance listeners with the far field radiation which transitions to a 6 dB per doubling of distance sound fall off. In contrast, my advice for a home application of a line array is to operate them only in the near field. Near field operation is characterized by the lower sound far off so the volume of sound within the room seems virtually constant as you move from front to back of the room. Likewise, the image/soundstage is very wide as the sound fall off from side to side of the room is less. I call it a sweet area versus a sweet spot as the imaging is nearly wall to wall. The biggest difference in my mind for near field operation is that you do have a significantly higher direct sound to reflected sound ratio. In the near field the vertical sound radiation is perpendicular to the array so little energy bounces off of the ceiling or floor. It is truly a wall of sound radiating toward the listner. Bottom line is that near field listening assures that you hear more of the sound from the speaker and less of the reverb from the room. Meanwhile in the horizontal plane the line array's radiation is dependent to the capability of the drivers to have a wide radiation pattern--you have used up your degrees of freedom by stacking all those drivers in the vertical axis. Hence, the result is that you have wide sound radiation in the horizontal axis--just as you would have with conventional point source speakers--but with the reduction ceiling and floor reflections due to the vertical axis shaping.My white paper (see the link) explains this performance. Jim
Near Field Line Array White Paper