Subject: To faithfully transform the electrical representation of sound back into an acoustic signal
Posted by Wayne Parham on Wed, 27 Mar 2002 20:27:31 GMT
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for large scale sound production. In home listening environments, we want a system with good frequency response, low distortion and wide dispersion, particularly in the horizontal plane. When there is only one or two speakers in the listening room, you need each individual speaker to provide as much coverage as possible, so they need to be units capable of providing high dispersion throughout the entire audio bandwidth. But the dispersion should be controlled so that reflections are minimized.Larger environments require much greater energies, particularly in the lowest octaves. So sound production in medium and large halls requires subwoofer systems, and I highly recommend subs for high-performance implementations. Horn dispersion angles are generally narrower in prosound applications, because improved directivity control makes array performance better. Since several horns are usually required, arrayability is a concern. I also recommend active crossovers for prosound systems because they are configurable, and you can do some things with them that you wouldn't do passively.For large sound reinforcement, it is recommended that each speaker be highly directional, and its pattern focused into a specifically localized target area. I would use very highly directional three-way, four-way and even five-way systems with multi-amplification for such an application. For large-scale sound production, you want extremely directional speakers because several will be required and you want to minimize overlap as much as possible.So as you can see, the line of speakers shown on the web site are not really suitable for so-called "PA use," except in very small environments. But really - other than the issues of dispersion vs. localization - a good speaker is a good speaker. To use the term "PA speaker" as some sort of descriptive measure of quality isn't really appropriate. It makes no sense to describe a system as a "PA speaker," whether trying to boast about high-level output or

systems shown on the website are all designed to handle quite a bit of power and they are also pretty efficient, so their dynamic range is quite high. They are not purpose-designed for flea-powered amplifiers, nor are they designed for brute-force 1000 watt sand amps, but rather

perform as best as can be afforded with the components chosen.We've got everything here from systems containing only fifty dollars worth of parts to those with several thousand dollars worth of parts. Whatever you build, if you're using my plans, you're going to get an opimal design that extracts every bit of performance possible. They are entirely linear, and don't sacrifice linearity for efficiency, as the vast majority of horns and PA designs do. So the bottom line is that you'll get what you pay for here - Nothing more but certainly nothing less.And as to active vs. passive crossovers, I designed a very, very good passsive network because most people use passive crossovers in their speakers. Most people buy or build loudspeakers and connect them to a good amp and listen to the system. There is a large minority of active crossover and multi-amp users here, and I suppoort them with this choice. But I find that a loudspeaker design for the home that doesn't include a good passive crossover is a design that isn't finished yet. I would say that a great deal of the functionality has not been included.If my guys want to run active crossovers and bi-amp - Fine. In fact, super. But that just means that they disconnect the passive network I've designed for them and hook up their amplifiers directly to the speaker motors. Then we have a whole different issue to consider: What is the quality of the active crossover unit? Because if it is used with a two-way system having compression horn tweeters, the filter's response must look

exactly like the ones shown in my crossover document or system performance will suffer. Hopefully, the active design is configurable to accomodate, or maybe the user is lucky enough to have purchased (or smart enough to have built) an active unit that was purpose designed for their specific implementation.