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Subject: What is the best speaker/subamp question

Posted by [dB](#) on Fri, 22 Jan 2010 00:08:30 GMT

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Wayne Hi,

I saw this tread about your speakers on diyAudio.

"pi speaker kits for rock and hard rock?"

<http://www.diyaudio.com/forums/multi-way/159135-pi-speaker-kits-rock-hard-rock.html>

No doubt they really rock...

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Posted by [Wayne Parham](#) on Fri, 22 Jan 2010 02:08:59 GMT

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sort of a budget hybrid model that also provides uniform directivity, something like a cross between the cornerhorns and the matched-directivity two-ways. Each of these models provides uniform directivity, which gives good seat to seat coverage with excellent imaging for each listener in a relatively large area or "sweet spot". More about the technologies incorporated in these speakers can be found in the links below:

Pi horn design philosophies

Phase angles, crossovers and baffle spacing

Baffle spacing, phase angles and time alignment, revisited

Matching directivity in the vertical and the horizontal planes

DI-matched two-way loudspeakers

Crossover optimization for DI-matched two-way speakers

My personal opinions of various design philosophies

Room gain, pressure region, modal region and reverberent region

Baffle Step

Imaging, placement and orientation

Corner Horn positioning "Sweet Spot" for listening

Making speakers "disappear"

Recommended toe in Whether you choose a constant directivity cornerhorn or a matched-directivity two-way speaker, I suggest augmenting them with two to four subs in a Multisub configuration. This not only increases bass end extension but also smoothes room modes.

bookshelf speaker is needed and high efficiency is desired or required. Naturally, being high efficeincy speakers in a relatively small box, they don't offer deep bass and that's why they're really best as surrounds. But they can be run as mains with subs, perhaps as a secondary or

couldn't be used, because they generate deep full bass all by themselves.

I personally own every model of my loudspeakers, and listen to them all pretty often (even the and shows. I also rotate between main models sometimes, but really only because I do shows. Otherwise, I'd make a pair of speakers and live with them for years, even decades. That's how I

On the subject of amplifiers, I tend to prefer the little single ended tube amps these days, but have used everything from those to huge prosound arc welder amps. To me, the speaker is the biggest deal because it's where most of the acoustics problems are created or solved. Ironically, it's the simplest machine in the sound system but it is also the only component that actually creates sound, so is arguably the most important. For a lot of technical reasons, I think it's where you stand to gain or lose the most in sound quality. Still, for amps, in my personal systems, I have a 10 watt SET amp in my office driving the cornerhorns, a 12 watt SET amp driving the mains in my living room and a 50 watt single ended FET amp driving the subs. The surrounds are actually driven by a (wireless) digital amp, but are only running when movies are viewed. The bedroom system uses a 10 watt ultra-linear tube amp, which is a type of push-pull amp. I still use the big Crown arc welders to drive the hornsubs.

real cool. (If you don't know what I mean, I'll show you some pics real soon but 'til then, you'll just have to be in suspense.) We've had a bunch of very talented woodworkers frequent this forum over the years, guys like Epstein, Martinelli and several others, too many to mention or even for me to remember, and I've definitely borrowed finishing ideas from some of them. These latest speakers have been influenced a little bit from each of them.

Martinelli always used real cool looking exotic woods and he also turned me on to hand rubbed tung oil. Epstein clued me in on dozens of tips and tricks (search the forum and you'll see what I mean) and his latest one is nitrocellulose lacquer, which is being applied to my new speakers as we speak. Garland did this cool curved grille back in 2001, I think, something like that. I always loved that look and asked him if I could borrow that style on some of my own speakers sometime. I'm just now getting around to building them, and they're smoking hot two-tone wood with bubinga burl and a brown grille covering ash partial front baffles. You can just see the hint of those AE pole plugs through the grille, or take them off to see all their beauty. Sweet.

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Subject: Re: What is the best speaker/subamp question

Posted by [tom-m](#) on Fri, 22 Jan 2010 05:12:15 GMT

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Great stuff Wayne. The wood and finish you are describing sound really interesting. How do you like the TD12 woofers compared to the JBL's?

Thanks.

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Subject: Re: What is the best speaker/subamp question  
Posted by [Wayne Parham](#) on Fri, 22 Jan 2010 14:31:56 GMT  
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I've only actually measured the TD12S and done some light casual listening. They measure pretty good but I'll reserve judgement until I've lived with them a while.

I'll say this: The JBL 22xx series midwoofers are top-notch, no doubt, hard to beat, especially with the resources available to JBL to make them so. They do two things that most everyone else has a hard time even getting close in terms of performance. Their distortion performance is great, a result of the magnetic circuit. They are able to reduce flux modulation more than any other loudspeaker I've seen. That's where those deep R&D pockets bring rewards. Also, the upper end smoothness is nice, and that's something you have to have in the midwoofer of a good DI-matched two-way speaker. It's all about the magnetic circuit and the cone shape and material, and to a lesser extent about the surround, because those are the things that set the cone breakup. Here again, the performance of the JBL 22xx series drivers is excellent, I'd say best of industry. They sort of set the curve for me - They're the drivers I compare all others to.

As you can see, the AE woofers had some steep competition in my eyes. I'm not a person to ignore alternate possibilities though, and one thing I could see for sure is the AE woofers are nicely built, hand crafted parts. If nothing else, they are audio jewelry. I also agree with their position on thermal control - their drivers use pole piece wicking very much like I do with my cooling plugs. I wanted to at least try them, and if they measured poorly then I would quietly decide not to include them in any of my loudspeaker models. On the other hand, if they measured well, I'd have two top-of-the-line options for customers and hobbyists to consider - the four and seven would use JBL and the three and six would use AE. That's precisely what I have now in the line.

I was impressed by their upper end smoothness, much like the JBLs. They do a great job above 1kHz, and that's harder than the bass by a long shot. Kind of funny, I know, to evaluate a woofer based on its upper midrange. But in a DI-matched two-way, it's probably the most important region, at least the hardest to get right. This is a deal-breaker region. The AE woofers have two things going for them - their suspension and cone shape/materials keep the assembly free of breakup at high frequencies. Response is smooth and free of glitches. Another thing that's nice is the impedance doesn't rise by a significant amount, not even well above the crossover region, so these woofers don't even need a Zobel. That's weird, in a good way. Driving these speakers is almost like driving a test resistor. So the AE woofers were a joy to design with, and impressive to test. I expect listening to them will be just as enjoyable. First impressions are great, but like I said, I want to live with them for a while.

I've listened to JBL 22xx woofers in my loudspeakers since 1980. My first models used the JBL 2205, a truly excellent midwoofer. All the 22xx woofers have served me well, and made my speakers sound wonderful, at least in my opinion. Like a life-long friend, I know them in and out, I know their sound, how they act at extremes, how they sound after days and days of listening to them non-stop, how they sound brand-new, out of the box, how they sound ten years old and rode hard, how they age and what they'll do in pretty much any situation. I've lived with them for three decades. So to compare the AE woofers with them and get the same feel will take me some time.

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