

## 2003 GOLDEN EAR AWARDS

### Vandersteen Model 5A Loudspeaker

Shane Buettner



could never quite achieve the openness, transparency, and dynamic punch of the flagship, I was getting enough from my rig that I didn't feel compelled to shuck it and step up. But then a wonderful and terrible thing happened. I listened to the substantially updated Model 5A extensively at the HE show in San Francisco in June and finally went home feeling that

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my 3A Signatures were broken. Even though the speakers weren't literally broken, my perception of them was shattered. No amount of tweaking was going to get me close to the performance I'd

heard from the nearly \$15k Model 5A.

Richard Vandersteen refers to the new 5A as a series of incremental improvements to the Model 5s, a four-way loudspeaker with a 400-watt powered subwoofer in each cabinet. In reality the 5A's improvements add up to more than the sum of these changes. Consult the sidebar that accompanies this review for more technical details, but, in brief, the power supply of the

I've owned Vandersteen 3A Signature loudspeakers and 2Wq subwoofers for nearly three years. Over that time, I've had countless opportunities to hear Vandersteen's flagship Model 5 at shows and in the homes of friends. I knew that the Model 5 was superior, and these visits would always inspire a round of tweaking, as I tried to eke out yet another small improvement from my system. Though I



subwoofer amplifier module has been changed to switch-mode, with a power-factor-corrected, regulated supply; the crossover components have been upgraded; and the patented 4.5" midrange and 1" tweeter have been changed to substantially improved models. Owners of Model 5s can upgrade to 5As for between \$4050 and \$5650, depending on the age of the speakers. As you'll read the upgrade is unequivocally worth the price.

The Model 5A's performance is beyond anything I was prepared for. It is the most "put together" speaker from top to bottom that I've heard, offering the most complete and integrated look into the music. From the deepest, most thunderous bass notes to the most ethereal highs, and especially the stuff in between, this speaker captures every nuance and detail of music with rich natural timbre and tonality. And it does so in the most relaxed and purely musical fashion imaginable for a speaker with such dizzying resolution.

The sound of a time- and phase-accurate speaker is going to sneak up on some of you. Most people are used to hearing the tweeter hit you first, which creates, along with steep-slope crossovers, a false impression of speed and top-end detail. A time-aligned speaker sounds warmer with less pizzazz initially. But in time (pun intended), you'll come to regard the sound of conventional speakers as a form of edge enhancement, like

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cranking the sharpness up on a TV—certain details jump out while others are obscured. When reproducing piano with many conventional loudspeakers, the midrange driver reproducing fundamental notes will be out of phase with the tweeter reproducing its decay. With time- and phase-accurate speakers the fundamentals and harmonics are always integrated in the time domain, and the overall sound has more natural coherence with rock-solid imaging.

Convincing image density and focus are, indeed, what set the hook in me with time- and phase-accurate speakers, and especially the 5As. The 5A's baffleless head module minimizes

## Technical Innovations

Virtually every manufacturer of expensive loudspeakers claims its speakers are more technically advanced than the next manufacturer's, and frankly, most of them aren't. This speaker is so advanced that space simply doesn't permit me to do more than highlight some of its most compelling attributes.

Time distortion can be caused by drivers, crossovers, and cabinets, and the 5As, like all Vandersteens, are truly time/phase accurate, accounting for all three liabilities. A lot of manufacturers wire their drivers out-of-phase, and/or use steep-slope crossovers, but talk about cabinets and other components that reduce time distortion. That does not mean their speakers are time/phase accurate. Time/phase accuracy is like pregnancy—you are or you aren't, there's no "kinda sorta." A truly time/phase-correct speaker staggers the drivers for physical time alignment, wires all the drivers in positive absolute phase with one another, and uses first-order (6dB/octave)

acoustics slopes in the crossovers. Period. Think of reproducing a drum kit with speakers that have some drivers moving in while others are moving out. Do you think that would sound as tight and coherent as a speaker with drivers moving in and out in unison?

All of the drivers feature proprietary components, and are aerodynamically designed to eliminate internal reflections, a source of time distortion. The alloy tweeter is a dual-chamber, transmission-line-loaded job that's damped with a special coating and fitted with a phase plug to push its rated extension to 30kHz ( $\pm 1.5$ dB), with a damped resonance well beyond the audible range. An additional tweeter can be turned on that fires from the rear of the cabinet for additional spaciousness, a feature I didn't find a use for. The 5As use a patented 4.5" midrange driver that you won't find *anywhere* else. Where typical midranges have magnet structures that are nearly the same size as the cone itself the Vandersteen

midrange's alnico magnet is cylindrical to open the back of the driver and prevent the back wave from being reflected into the room, out of time, and distorting the signal. The woven composite material is light but more rigid than paper or plastic, for resolution superior to the mineral-filled polymer used in the Model 5's midrange.

The Model 5A's 7" midbass driver resides in the head section of the speaker and is similar to the driver that's used as a midrange driver in the Wilson WATT/Puppy 7. The Vandersteen version uses a proprietary cone that's actually a Kevlar cone sandwiched between a special coating on the backside and a mineral-filled polymer cone on the front side. This driver cone has the rigidity and strength of Kevlar, but according to Vandersteen the constrained-layer damping eliminates the ringing you'd typically get with Kevlar. Using this driver as a woofer with a separate, smaller midrange has myriad advantages. Speakers that use drivers this size for midrange frequencies have a number of drawbacks, including the polar pattern they create. You'll often hear how these speakers are so high in resolution that moving them the slight-



boxiness to such a degree that comparisons to the open sound of panel speakers are legitimate. The music is free of the speakers, and images are very tightly constructed and lifelike in all ways, including size and height. You sense pockets of air surrounding musicians and vocalists, layering them on the stage, front to back and side-to-side, with dimensional presence and astonishing focus. With guitar players I could not only hear but practically see both hands playing the instrument, creating a much more convincing picture of the whole instrument. Saxophones are holographic with the reed, keys, and body of the horn woven together tightly in space—you can clearly hear the breath move from the player through the instrument. With vocalists, every movement near the microphone is apparent, creating the illusion that you can see the singer bobbing his/her head, or leaning into and away from the microphone. It's almost as though you can sense a head and a body along with the voice. Part of the reason live performances are so compelling is that the musician's body language becomes part of the musical expression. The Model 5A gives more of that sensation than I've experienced with any speaker. I've never heard such precision in reproducing the lowest-level spatial details in recordings.

The Model 5A gets further away from the downsides of

first-order crossovers (namely dynamic contrast and loudness) than any first-order design I've heard. The 5A is a powerful and dynamic speaker, and it sounds like it (the powered sub helps). In fact, one of the most significant ways in which the 5A distinguishes itself from the original Model 5 is in its less-restrained dynamics and greater degree of ease when pushed to higher volume levels. First-order crossovers place a lot of demand on the drivers because they have to cover such a broad range of frequencies, and yet the 5A holds its sonic picture together through demanding passages (think orchestra) with a more open, less congested sound. It will not reproduce the extreme dynamics that some steep-slope designs do, and there are speakers that can certainly play louder. These speakers easily play louder than I listen, although you have to pump a lot of amplifier juice into them to get that much volume out. In spite of the built-in powered subs, the 5As are still low-sensitivity speakers (rated at 87dB) and need lots of power if you want lots of volume. I personally wouldn't trade the purity of musical expression and "you are there" transparency and imaging of this speaker for something that plays louder than life, but if you would, have at it.

Nothing I've heard in my room comes close to the 5A's bass in concussive extension or articulation—it delivers shockingly

est amount affects their sonic signature. One of the reasons for this is that the midrange frequencies tend to focus into a tight beam around the center of the cone, making the center of the driver act like a midrange flashlight. You'll often see these speakers toed-in right at the listener's ears for that reason. Also, in the case of a two-way with a large midrange/woofer, what do you think happens to the midrange resolution as the speaker is trying to reach the kind of excursion necessary to produce deep bass?

Speaking of deep bass, the Model 5A's comes courtesy of a 400-watt powered subwoofer with a unique aluminum-cone 12" push/pull driver and adjustable EQ that allows adjustment at eleven frequencies from 20–120Hz to tailor its in-room performance. Further, the subwoofer's level and "Q" (contour) can be adjusted to dial in bass performance to a degree that I found astonishing. Although it uses a single driver, the Vandersteen subwoofer driver looks like two 12" drivers facing one another. In this dual-motor system, each end of the driver has its own magnet/voice coil structure with the voice coils wound on a former that runs through

both ends and is said, in this push/pull configuration, to produce over an inch of perfectly linear excursion. The woofer is located at the bottom of each enclosure and loads the room from slots that fire out the bottom and rear of the speaker. Slot-loading maintains the tightness you hear with a sealed enclosure while offering more predictable in-room response.

The Model 5A comes with an outboard passive first-order high-pass filter that sits at the input of the power amp and rolls off bass fed to the amplifier at 100Hz. All the crossover circuits (in the external high-pass boxes and internal crossovers) are battery-biased so the circuits stay charged and are always warmed up and ready for use. The components are top-shelf, including WIMA and InfiniCap capacitors and silver wiring. High-passing the signal with a powered woofer relieves your power amplifiers of the taxing burden of reproducing deep bass, which in turn improves midrange clarity and overall dynamics. The 5A subwoofer woofer module receives the high-passed signal from the power amplifier with all of its sonic characteristics, including time and phase information, and applies a compensatory lift that corre-

sponds with the first-order filter's response for seamless integration.

The cabinet construction is the most extreme expression of the Vandersteen baffleless enclosure philosophy. The head section that houses the 7" midbass, midrange, and tweeter is contoured around each of those drivers, with just enough room for each driver. This minimizes early reflections, decreases time smear, and increases overall transparency. This head section is 22 layers of MDF sandwiched together with proprietary anti-resonant adhesive (the secret sauce), and the 7" midbass driver is loaded in a damped transmission line to flatten its impedance curve making a more stable load for the power amplifier to drive. Separate 1"-thick driver mounts made from a dense laminate rigidly couple the drivers to the head section. The bottom section of the 5A is made of 1–2"-thick constrained layers of dampened material with heavy internal bracing, all of which ensure that the cabinet won't store energy and release it out of time. From top to bottom this is one of the most advanced speakers ever conceived. **SB**



deep, tuneful, and expressive bass. It's rated to be down only 1.5dB at 20Hz, and clearly has usable if not forceful output to at least that frequency in my room at the listening position. My room is 25x17 feet, and I heard the bass impact described here with the front of the speakers more than five feet out from the front wall. On Lyle Lovett's *Joshua Judges Ruth* [MCA] "Baltimore" had some deep bass transients that were so visceral in impact that at first I thought that my wife had dropped something heavy upstairs. Uncannily real impact with surprisingly palpable height information.


But what's even more impressive is how seamlessly the subwoofer blends with the rest of the 5A's sonic signature. It doesn't sound like a subwoofer woofing away—just deep, authoritative bass that keeps going down. That such absolute extension at the lowest end gives way to such transparency and speed with acoustic bass and even bass voice is remarkable. Even an excellent external sub won't disappear in your system quite to this degree. And you'll find it nigh impossible to drive a passive speaker to this kind of bass performance in your room, no matter what kind of amplification you throw at it, and you'd certainly have to move it closer to the room boundaries for reinforcement, which would have a negative impact on imaging and soundstage. The 5A leaves you free to shop for the amplifier that floats your musical boat without having to compromise that decision by also considering what's going to deliver the best deep bass. And your midrange will be more resolved and dynamic with your amplifier relieved from low-bass duties.

And, of course, the midrange is where the Vandersteen Model 5A separates itself dramatically from the competition. You won't find the Vandersteen midrange driver in other speakers and you won't find its purity and resolution elsewhere, either. It's open and natural and incredibly resolved. I've heard many, many speakers that are touted as being highly resolved, but none of them come close to Vandersteen 5A's performance in this critical band. Listening to Norah Jones's *Come Away With Me* (on Classic Records vinyl, not CD or SACD) on some highly regarded speakers with larger and/or less discerning midrange drivers, it sounds like half the information of her vocal is just gone. On the 5As her closely miked voice is rich, breathy, slightly granular in texture, and wonderfully expressive. With less resolution, it's just not as involving. Some high-end speakers with aluminum or ceramic drivers have some of this resolution but at the expense of a whitish, analytical, and non-musical tonal color. The Vandersteens reveal more information, yet never veer toward the analytical. The 5As never forget the music in their pursuit of resolution.

Compared with the original Model 5, the 5A is unquestionably more open through the midrange and on top. Cymbal splashes ripple naturally through the air and dissipate. With hi-hats, I could practically feel the air between them expand and collapse. Piano notes have percussive impact and then the harmonics float out and liven the room. Like its midrange, the 5A's treble is extended and free, revealing but devoid of the grain and tizz masquerading as "airiness" you'll hear in other designs. The air is

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there, but it's clean and clear with no discernible resonances.

In some ways dissecting this speaker's performance attributes and describing them separately as much as I've done here misses the point. Although they are unquestionably the finest loudspeakers I've heard, the 5As are about music as a whole and not its individual components. The Vandersteen Model 5As were installed nearly three months ago as I write this and I'm still pulling my records out every day to discover what's *really* on them. Not what's on them in hi-fi terms but what's there in emotional and artistic expression. Richard Vandersteen's legacy in hi-fi is already established as a champion of time-and-phase-accurate speakers that are price/performance barrier-breakers. The Model 5A is a landmark speaker, an instant classic, and the speaker that cements his legacy as a technical innovator and designer of some of the most advanced and highest performance speakers the industry has seen. 

#### SPECIFICATIONS

Driver complement: Alloy-dome tweeter, 4.5" woven composite midrange driver, poly/Kevlar midbass woofer, 12" aluminum cone subwoofer  
Frequency Response: 20–30,000Hz ±1.5dB  
Sensitivity: 87dB  
Impedance: 8 ohms  
Dimensions: 14" x 44" x 20"  
Weight: 180 lbs. (each)

#### ASSOCIATED EQUIPMENT

BAT VK-51SE and Aesthetix Calypso line stages; Theta Dreadnaught power amps; Linn Sondek LP12/Ekos/Akiva/Lingo turntable; Linn Linto and Aesthetix Rhea phono stages; Musical Fidelity Tri-Vista CD/SACD player; dCS Verdi/Delius CD/SACD combo; Audioquest Cheetah interconnect and Kilimanjaro speaker wire; Richard Gray's Power Company 400s and 1200s; room by Acoustic Room Systems

#### MANUFACTURER INFORMATION

##### VANDERSTEEN AUDIO

116 West Fourth St.  
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(559) 582-0324  
www.vandersteen.com  
Price: from \$14,700/pr.