

Electronically reprinted from November 2006

Vandersteen Quatro

LOUDSPEAKER

Michael Fremer

DESCRIPTION Four-way loudspeaker with powered subwoofer. Drive-units: 1" dual-chamber, coated aluminum-alloy dome tweeter; 4.5" curvilinear filled-polycone midrange cone; 6.5" woven-fiber-cone woofer; two 8" carbon-loaded cellulose-cone subwoofers. Subwoofer amplifier: built-in, 250W, with multiband room-response compensation. Frequency response: 24Hz–30kHz, ± 2 dB.

Impedance: 6 ohms (± 3 ohms). Sensitivity: 87dB/W/m.

DIMENSIONS 43" (1100mm) H by 10" (255mm) W by 19" (485mm) D. Weight: 110 lbs (50kg).

FINISHES Black cloth sock; Quatro Wood all-wood versions from \$10,700/pair.

SERIAL NUMBERS OF UNITS

REVIEWED 1176, 1177.

PRICE \$6995/pair. Mandatory in-line high-pass filter costs \$595/pair, unbalanced, \$795/pair, balanced.

Approximate number of dealers: 60. Warranty: 5 years parts & labor.

MANUFACTURER Vandersteen Audio, Inc., 116 West Fourth Street, Hanford, CA 93230. Tel: (559) 582-0324. Web: www.vandersteen.com.



Vandersteen Audio Quatro: "sock" version.

Record playback could have been designed to go from the inside out instead of the other way around. With most pieces of music ending louder than they started, doesn't it make more sense to end the side at the widest circumference, longest wavelength, least congested part of the groove spiral? Compact discs read from the center hole out, and they don't even have to.

Life, too, would be better if it ran that way. You'd begin existence old and feeble, knowing everything, and just get younger. You'd still wind up near the end crawling on all fours, gurgling and eating baby food, but soon thereafter...what a way to go!

Audio reviewing would be much more accurate if one got to hear *everything* before reviewing *anything*. Unfortunately, it doesn't work that way.

Because Vandersteen Audio has been around for so long, because it doesn't reinvent itself for marketing purposes every six months, and because, while the speakers it builds are attractive enough, they don't exactly qualify as eye candy, the brand is sometimes taken for granted. Richard Vandersteen's loudspeakers uniformly get respect, but they're rarely the objects of audio lust. I've been doing this for 20 years and somehow, until now, I'd never reviewed a pair. My bad.

I first heard Vandersteen's new Quatro at last year's CEDIA Expo home theater

extravaganza in (of all places) Indianapolis, Indiana, during a visit to the Audio Research room. The Quatro is a small, graceful, tapered box less than 4' tall, with a footprint of 10" by 19". As is typical of Vandersteen designs, the baffle is wrapped in black cloth, which cuts both costs and visual appeal. (A more attractive, all-wood version, the Quatro Wood, was recently introduced; prices start at \$10,700/pair.) On the other hand, if you want a speaker that can seem to disappear in a room, the cloth-covered Quatro fits the bill.

Yet despite the Quatro's bland looks,

there was something so *right*—tonally, spatially, and dynamically—about the sound I heard that day in the Audio Research room that I blurted out right on the spot that I'd like to review them. That's the first time at a trade show that a Vandersteen speaker has elicited such a response from me.

The man comes around

Six months later, Richard Vandersteen arrived at my door to set up the Quatros, the unsettled spring weather having convinced him to fly via commercial airliner instead of piloting his own

plane. After a short session of listening to my reference speakers, the Wilson Audio Specialties MAXX2s, we rolled the Wilsons out of the way, unboxed the Quatros, and placed them within the lines of masking tape that define where the MAXX2s—and most other speakers I've reviewed here—sound best.

The Quatro is a four-way design with a subwoofer system comprising two 8", long-throw, carbon-loaded cellulose cones powered by a 250W class-B amplifier. The sub's 20–100Hz bass response is room-customizable via an 11-band low-frequency equalizer as

MEASUREMENTS

My estimate of the Vandersteen Quatro's voltage sensitivity was both significantly lower than specified and lower than average, at 83dB(B)/2.83V/m. Fortunately, the speaker's impedance plot (fig.1) indicates that it is a very easy load, with a generally low electrical phase angle and an impedance that drops below 8 ohms only in the high treble. The minimum value was 7.6 ohms at 11.7kHz. The peak of 21.6 ohms at 68Hz indicates that this is the tuning frequency of the front-panel woofer, though the in-line high-pass filter will prevent this drive-unit from reproducing frequencies this low. Fig.2 shows the response of this filter set to the 100k ohm input impedance of the Audio Precision analyzer. The output is down 3.23dB at 100Hz, very close to the specified -3dB at this frequency, and the roll-off slope is the expected 6dB/octave.

Other than a small glitch at 26.5kHz—the frequency of the metal-dome tweeter diaphragm's "oil-can" resonance—the impedance graph was free from the small discontinuities that would indicate the presence of cabinet resonances. Even with the cloth "sock" that covers the black-painted MDF rolled down, I found the Quatro's cabinet extremely inert. Fig.3 shows a cumulative spectral-decay plot calculated from the output of a simple accelerometer fastened to the Quatro's front baffle 6" below the woofer. Although four vibrational modes can

be seen, the lowest in frequency lying at 418Hz, these are all well down in level; I think it safe to proclaim that they will have no effect on sound quality.

The first acoustic measurements I took of the Quatro were of the individual drive-unit sections, on the tweeter axis at 50" with the sock rolled down, and with the amplifier driven by the in-line high-pass filter correctly set by measurement for its input impedance. These are shown in fig.4, along with the nearfield responses of the upper woofer and the midrange unit. The woofer rolls off a little earlier than the -3dB at 100Hz specified, though this is partly due to the effect of a shallow peak in the midrange.

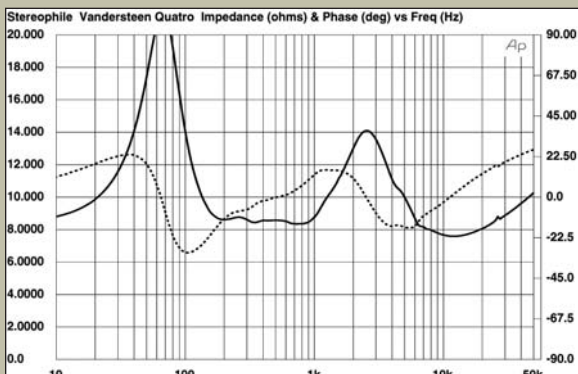


Fig.1 Vandersteen Quatro, electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

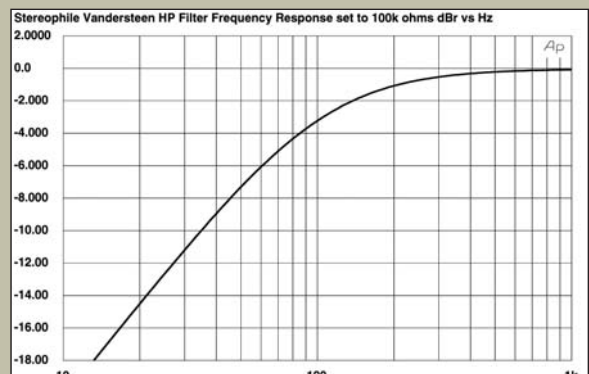


Fig.2 Vandersteen Quatro, response of in-line high-pass filter, set for 100k ohm analyzer input impedance (2dB/vertical div.)

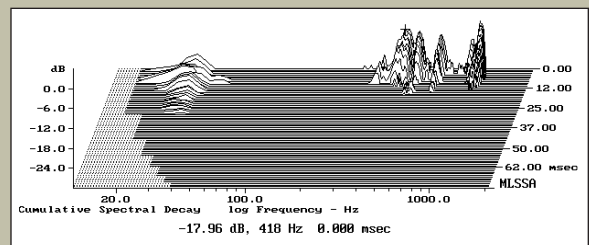


Fig.3 Vandersteen Quatro, cumulative spectral-decay plot calculated from the output of an accelerometer fastened to the cabinet's front baffle below the woofer, with sock rolled down (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

well as level and contour controls. The idea is to place the speakers where the imaging and soundstaging are best, then dial in the optimal bass afterward.

All of the Quatro's crossovers are first order (6dB/octave), which Vandersteen says maintains time and phase coherence. But because of the shallowness of the rolloff slopes, such designs require drivers of the highest quality, capable of linear performance over a wide bandwidth.

A newly designed 6.5" woven-fiber cone unit produces midbass and lower-midrange frequencies (100–900Hz);

Vandersteen's patented drive-unit design, a transmission-line-loaded, curvilinear, mineral-filled polycone unit handles the upper midrange and the low treble (900Hz–5kHz). Richard Vandersteen explained that the design of this unit eliminates backwave reflections caused by its magnet structure, which can smear transients and diffuse images. A tapered, transmission-line-loaded dome tweeter of ceramic-coated aluminum alloy handles the high frequencies, from 5kHz to beyond 30kHz.

Setup began with the insertion of

the passive high-pass filter boxes between preamp and amp. These cost \$595/pair for unbalanced operation, \$795/pair for balanced, and while they are priced separately, they must be used with the Quatro to provide the necessary bass rolloff for the passive woofer. Its first-order filter action, -3dB at 100Hz referenced to 1kHz, is set by matching its impedance via internal DIP switches to the amplifier's input impedance.

The amplifier's output (with its bass rolled off) feeds two pairs of screw-terminal barrier strips mounted on the

A broad overlap can be seen between the outputs of the woofer and midrange-tweeter sections, with the crossover slopes very shallow. The sharp notch visible at 4.6kHz appears to be the crossover frequency between the midrange unit and tweeter, and the response is plateaued up in the tweeter's passband, both of which suggest that the tweeter axis, which is 43" from the floor, is too high to be the intended listening axis.

I performed almost all of the acoustic measurements on the midrange axis, which is 35" from the floor, 1" below the height of Michael Fremer's ears in his listening chair—though I note that when Richard Vandersteen set up the Quatros in Mikey's room, he tilted the speakers back very slightly with spikes. The tweeter resonance results in a sharp spike at 26.5kHz, but this is too high in frequency to have audible consequences. Other than slight suckouts at 750Hz and 5kHz, the response on this axis is impressively flat. The response on the woofer axis, which is 30" from the floor, is plotted in magenta in this graph. The upper-crossover suckout fills in, but the top two treble octaves shelve down, as Michael noted in his auditioning.

The sum of the nearfield midrange and upper-woofer responses is plotted below 300Hz in this graph, taking acoustic phase into account; the passive section's output

is down by 3dB at 100Hz as specified, despite the woofer on its own appearing to roll off a little earlier. (The sum of the midrange unit and woofer responses is actually flatter in the midrange than the woofer by itself.) The colored traces to the left of this graph show the nearfield response of the Quatro's powered subwoofer module, with the

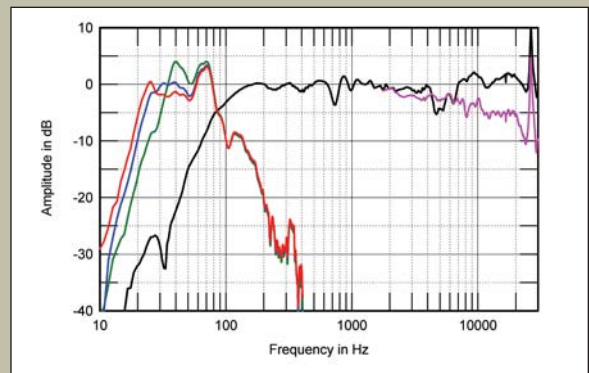


Fig.5 Vandersteen Quatro, anechoic response on midrange axis at 50" with sock in place, averaged across 30° horizontal window and corrected for microphone response, with the complex sum of the nearfield responses of the upper woofer and midrange unit plotted below 500Hz (black trace); the farfield response on the upper woofer axis (magenta); the nearfield responses of the subwoofer module with Contour set to "10" (green), "6" (blue), and "1" (red); and with 11-position equalizer set for MF's room acoustic.

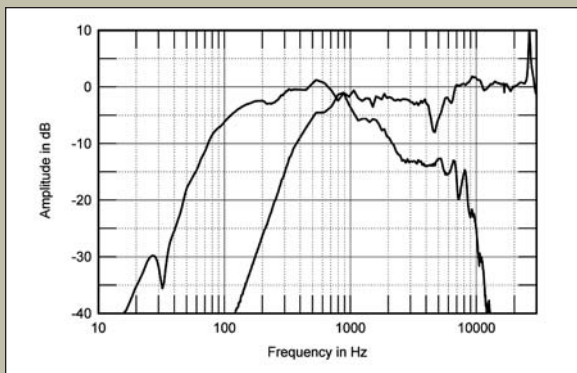


Fig.4 Vandersteen Quatro, acoustic crossover on tweeter axis at 50" with sock rolled down, corrected for microphone response, with the nearfield responses of the upper woofer and midrange unit plotted below 350Hz; in-line high-pass filter correctly set for amplifier input impedance.

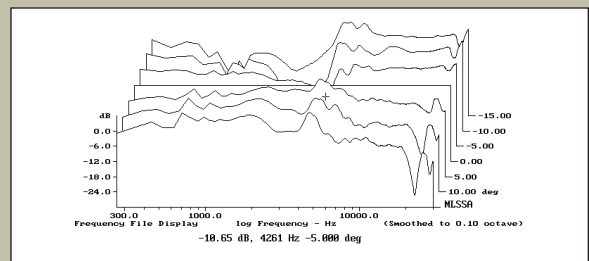


Fig.6 Vandersteen Quatro, vertical response family at 50", normalized to response on midrange axis, from back to front: differences in response 15–5° above axis, reference response, differences in response 5–15° below axis.

Quatro's rear panel: one for bass/mid-bass, one for midrange/tweeter. Richard Vandersteen recommends true biwiring, using two separate runs from each amplifier (or channel of a stereo amplifier) to each speaker. He claims that old-fashioned barrier strips sound best, but because of their narrowness, many modern spade lugs will be too wide to fit them. That proved to be the case with all the cables I had on hand—enough to build a suspension bridge. Fortunately, he'd brought along biwire sets of AudioQuest Volcano speaker cable (AQ also makes the filter box's output cable) fitted with sufficiently narrow spades to fit the Quatro's strips.

The powered subwoofer takes its input from the speaker terminals, with an inverse first-order filter restoring flat response. This allows your power amplifier's sonic character to deter-

mine the final sound of both the powered woofer module below 100Hz and the midbass-midrange-tweeter array above that frequency.

That accomplished, Vandersteen used a test CD and a RadioShack SPL meter to measure each channel's in-room bass response with the 11-band room-com-

THE **POWERED** SUBWOOFER TAKES ITS INPUT FROM THE SPEAKER **TERMINALS**, WITH AN INVERSE FIRST-ORDER FILTER **RESTORING** FLAT RESPONSE.

The Quatro sits on three floor spikes, one of which can be used to adjust the rake angle in order to optimize the placement of the speaker's 6" "vertical listening window" at ear height. This adjustment is critical to achieving an ideal tonal balance, as moving above it produces too much treble, and moving below it produces too little.

pensation controls set to flat (this adjustment should be left to your dealer). The Quatro comes with a most detailed and informative instruction manual.

Richard's SPL readings indicated that very little compensation was needed in my room. In fact, the left-channel Quatro required only slight tweaking of two of the 11 controls; most of the

measurements, continued

Contour control set to its minimum (red trace), middle (blue), and maximum (green) positions. (The Quatro's 11-band equalizer was set to the control positions that Richard Vandersteen had determined to be optimal for MF's room, hence the rather lumpy appearance of these traces.) Basically, the Contour control trades off low-frequency extension against the amount of midbass boost. MF had it set to the middle position for his auditioning.

As suggested by figs. 4 and 5, the Quatro is very critical regarding the optimal listening axis, something that both MF and I found in our auditionings. Fig.6 shows how the response changes as the listener moves above and below the midrange axis. On the tweeter axis and above, a large suckout appears at the upper crossover frequency and the high treble shelves up; below the midrange axis, though the mid-treble is flatter overall, the high-treble and midrange outputs shelf down. In the horizontal plane (fig.7), the high upper-crossover frequency results in a considerable degree of flare at the bottom of the tweeter's passband, the midrange unit not maintaining its output off-axis in the top octave of its passband. This will tend to compensate for the lack of energy in the same region of midrange-axis response

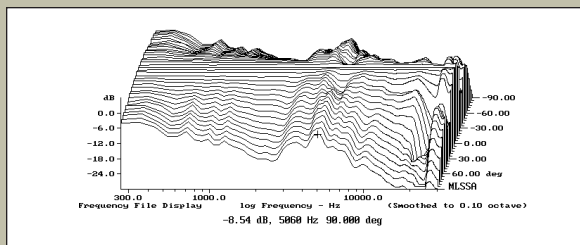


Fig.7 Vandersteen Quatro, lateral response family at 50", normalized to response on midrange axis, from back to front: differences in response 90–5° off axis, reference response, differences in response 5–90° off axis.

and result in an overall neutral treble balance in-room.

This can be seen in fig.8, which shows the Quatro's spa-

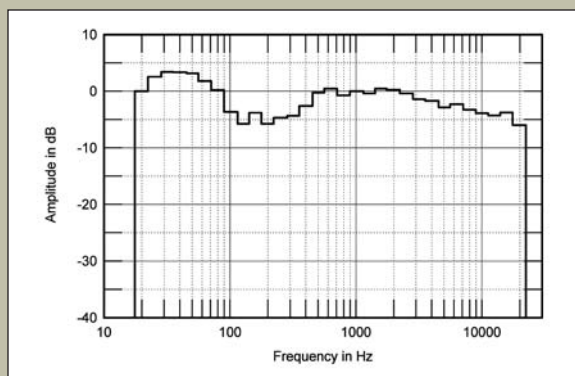


Fig.8 Vandersteen Quatro, spatially averaged, 1/2-octave response in MF's listening room.

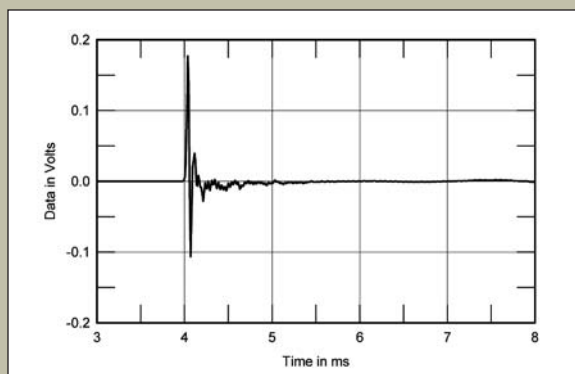


Fig.9 Vandersteen Quatro, impulse response on midrange axis at 50" (5ms time window, 30kHz bandwidth).

irregularities were minor dips, which are best left alone. The right channel was not quite as flat, but the entire procedure took less than half an hour, which Vandersteen said was unusually brief. He indicated both that my room was acoustically excellent and that the masking tape did, indeed, mark the ideal speaker locations.

The goal, Vandersteen told me, is not to perfectly “flatten” in-room bass response; his research shows that doing so results in amusical sound, and that overequalization, even when the result is flat response, becomes audible.

After calibration, the Quatros’ bass level and contour controls needed to be set by ear, preferably using a recording of an acoustic double bass. The level control sets the relative subwoofer output, the contour control adjusts the Q to provide a range from

tight to linear to sloppy-bubby-kiss bass. Providing such a range of options often proves problematic to obsessive

audience members in the Indianapolis office suite in which I’d first heard them. In my room, the Quatros developed an extraordinarily well-

IN MY **ROOM**, THE QUATROS DEVELOPED AN EXTRAORDINARILY **WELL-ORGANIZED** AND DETAILED **SOUNDSTAGE**.

audiophiles, but once placement and room compensation have been properly accomplished, dialing in these two variables is easily done, even if *leaving them alone* might not be.

Sound

Sonic memory is supposedly fleeting, but the first exposure to the Quatros in my room had me recalling the Indi-

anapolis office suite in which I’d first heard them. In my room, the Quatros developed an extraordinarily well-organized and detailed soundstage somewhat behind an imaginary line drawn between the front baffles that extended well back in space, expanding cleanly into the rear corners when appropriate to the recording.

Well-recorded, simply miked orchestral music produced dramatic front-to-back layering and pinpoint lateral delineation of individual instru-

tially averaged in-room response taken in a grid centered on the position of MF’s ears in his listening chair. The upper midrange and treble gently slope down in textbook manner. (Remember that a flat treble response is not optimal with an in-room measurement, which takes into account a speaker’s power response.) My own auditioning of the Quatros in MF’s room had led me to expect the shelved-up low bass in fig.8. What I did *not* expect was the lack of measured lower-midrange energy indicated by this graph—the Quatros didn’t sound as though they lacked punch, which is generally the subjective result of this kind of response. But whether this measured lack is due to the Allison Effect (destructive interference between the speakers’ direct sounds and their reflections from nearby boundaries), a suboptimally arranged crossover between the Quatro’s passive section and the powered subwoofer, or even the settings of the active section’s equalizer, I have no idea.

In the time domain, the Quatro’s impulse response on the midrange axis is time-coherent (fig.9). However, the step

response (fig.10) reveals that, even on this axis, the tweeter’s output slightly leads that of the midrange unit, suggesting that the optimum integration of the two units’ outputs occurs just *below* this axis. On the other hand, as the horizontal dispersion graph (fig.7) indicates, the associated suck-out on the midrange axis actually coincides with an excess of energy in-room. Quatro owners should experiment with the speakers’ tiltback to get the most neutral perceived treble balance in their own rooms. All the drive-units are connected with the same positive acoustic polarity, by the way.

Finally, the Quatro’s cumulative spectral-decay plot (fig.11) is impressively clean in the treble, though some delayed energy is associated with the on-axis suckouts.

Its use of first-order crossover filters makes the Vandersteen Quatro sensitive to set up. However, when it is set up optimally, its measured performance suggests that its owner will get a neutral sound balance and a time-coherent presentation, though I remain puzzled by that lack of lower-midrange energy in the in-room response. —John Atkinson

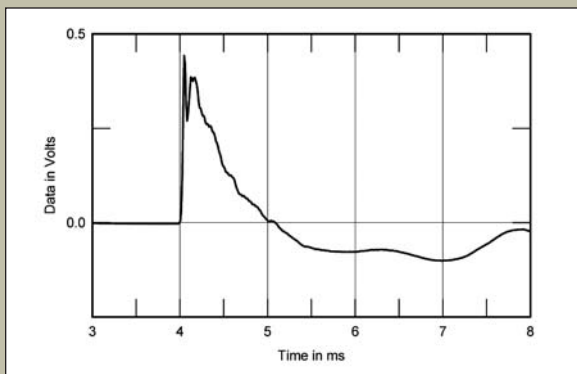


Fig.10 Vandersteen Quatro, step response on midrange axis at 50" (5ms time window, 30kHz bandwidth).

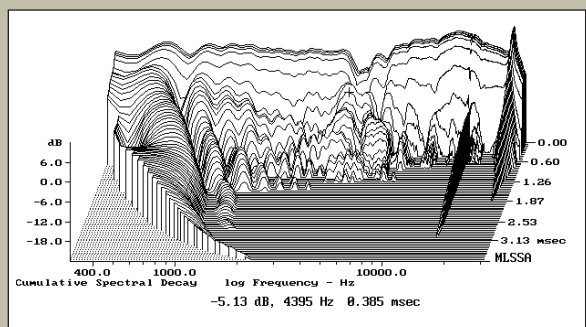


Fig.11 Vandersteen Quatro, cumulative spectral-decay plot at 50" (0.15ms risetime).

ments and whole orchestral sections that often exceeded what I normally hear in a concert hall, but the information had clearly been picked up by the microphones. Rather than being a distraction, the enhanced spatial resolution proved an engaging listening enhancement.

During the month or so the Quatros were in my system, the finest, most simply miked live recordings in my collection found their way to the front of my “must listen” list in short order, and my expectations for them were always met and usually exceeded.

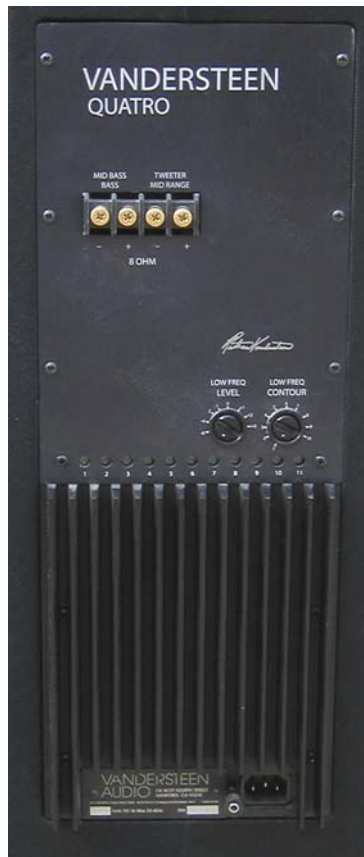
Unfortunately, I’ve dished out well-deserved imaging and soundstaging superlatives over many years of reviewing some outstanding loudspeakers, and chances are they’ve ended up on your review-reading plate like so much prison slop—so please forgive me when I say that, in most ways, the Quatro set new standards of imaging and soundstaging in my room.

Staging and imaging are not the most important performance parameters for every listener, especially those more interested in overall “musicality” than in sonic theatrics. But the Quatros’ image clarity, focus, and solidity, combined with the blackness of the “dropoff” just beyond the bounds of the projected images, were so unusually pronounced that they demanded attention.

For well over 35 years now I’ve been playing Pentangle’s superbly recorded *Sweet Child* (2 LPs, Transatlantic TRA 132), disc 1 of which was recorded live in June 1968 at the Royal Festival Hall by Damon Lyon-Shaw (who mixed The Who’s *Tommy*). The Quatros reproduced this spacious recording with exceptional clarity, transparency, and three-dimensionality. Getting a “wow” experience from a recording you’ve been enjoying for 35 years is one of the most enjoyable aspects of this hobby—and this job.

Side 2 opens with “Three Dances”—short dance dunes from the 14th and 16th centuries, played by Terry Cox on glockenspiel and John Renbourn on guitar. I had never before heard the musicians so compactly and finely focused to produce images that almost glistened, framed by a vast expanse of clearly delineated hall—nor had I heard the cool, bell-toned attack of the glockenspiel reproduced with such crisp, delicately nuanced precision.

In short, what I *thought* I’d heard in Indianapolis was confirmed at home.



JOHN ATKINSON

Quatro rear panel. Narrow barrier strip speaker terminals won't accommodate many "audiophile grade" spade lugs.

With the exception of stage height, which I thought flew a bit under the radar, the Quatros’ organizational talents, and their ability to project three-dimensional spaces and array precisely focused, solid images within those spaces, bested those of every other speaker I’ve reviewed, including my reference Wilson MAXX2s, which sound somewhat vague by comparison.

Tonal balance? Detractors like to say that Vandersteen speakers tend to sound thick and somewhat slow on bottom, and lacking in bloom and harmonic development in the midrange. That’s how the big Vandersteen 5 has always sounded to me at trade shows, perhaps due to less than ideal setup.

Not so the Quatro, either during that Indy encounter or at home. Instead, once I’d achieved a proper blend of woofer midrange drivers—and leaving the Q control centered—I found the speaker’s bottom end to be deep (down to around 30Hz), well controlled, and, most important, not noticeable as “bass” but rather as an integral part of

the musical picture. The well-damped, powered bottom end never intruded into the midbass, so the sound never became noticeably thickened or slowed-down. In fact, rhythmically, the Quatro was lithe, fast, and involving from top to bottom.

As bassist John Atkinson discovered when listening to Jack Bruce’s performance on the stunning three-LP edition of Cream’s *Royal Albert Hall, London May 2-3-5-6 2005* (Reprise 49416-1), mastered by Stan Ricker, the Quatro provided generous yet supple and nuanced deep bass that transitioned seamlessly into the midbass to produce an impressively uncongested musical foundation. Of course, playing these discs on the Continuum Audio Labs Caliburn turntable didn’t exactly inhibit the bass presentation!

The midrange was equally open, smooth, and uncongested, allowing subtle musical expression to pass unhindered, though those used to more midband richness may find the Quatro’s mids a bit reticent and less than fully fleshed out. I found that my favorite piano recordings, ones easily capable of revealing an overly warm or threadbare midrange, sounded neither boxy and overripe nor recessed and lacking in harmonic development. As hands made their way up and down the keyboard, the piano’s image neither expanded nor contracted, indicating smooth response from the lower mid-band up.

One evening I played a stereo LP of trumpeter Lee Morgan’s seductive *The Sidewinder* (Blue Note BST-84157) that I’ve heard countless times. I was startled to hear a long, familiar Morgan solo expressed with a level of delicacy, subtlety, and mike savvy—the way Morgan approaches and backs away from the recording microphone, depending on the intensity of his output—that most speakers gloss over. I found the balance of air and metallic brassiness to be about ideal, though the physicality of the trumpet’s bell was not as prominently expressed as I’ve heard it.

On top, the Quatro’s ceramic-coated, metal-dome tweeter sounded airy, extended, smooth, and free of obvious grain or audible peaks, though not quite as supple and silky as, say, Dynaudio’s Esotar tweeter, which remains one of my

favorites (though not everyone's). The Quatro's treble performance may strike some as *too* honest—it could easily reveal a too-heavy hand on the top-end EQ of many recordings, and often did.

The 180gm LPs of Donald Fagen's *Morph the Cat*—cut from the ½", 30ips analog master tape—arrived during the review. While I found the sound stunning (especially after a month with the CD), I thought the cymbals were somewhat hard and unrelenting. With the Wilson MAXX2s back in the system, the cymbals settled farther back into the mix, which made them easier to take, though at the cost of some detail and dimensionality. Which was "right," which "wrong"? Unfortunately, unlike video, there is no standard. I'd have to get Fagen or engineer Elliot Scheiner down here to tell me.

Put it all together and, tonally, the Vandersteen Quatro is an effectively balanced loudspeaker that places a premium on honesty and even-handedness. Given that too many recordings are mixed to sound bright, this honesty is occasionally at the expense of listenability. However, because the Quatro laid it all out well back in physical space, it never sounded aggressive or in-your-face, even when the recording was bright. Yet there was sufficient immediacy and presence to keep listening involvement at all times on high alert—the balance was anything but laid-back. When just kicking back and enjoying music (as opposed to analyzing sound) without applying a microscope to any particular region of the frequency band, I found the Quatro's tonal accuracy, harmonic richness, and rhythmic spring convincing, appealing, and emotionally involving with every genre of music.

In terms of dynamics, I couldn't fault the Quatro, at least in a room of small to medium size such as my own—though it also did an excellent job in ARC's large room at the CEDIA Expo.

Conclusion

I wish I could live my speaker-reviewing life (so far) backward. In the past few years I've reviewed many speakers, some noteworthy, some not. I'd relish the luxury of writing the reviews after first having listened to them *all* for the perspective it would provide, but that's impossible.

I gave the \$6495/pair Audio Physic Scorpio a well-deserved positive

review in June, and now here I am doing likewise with a \$7590/pair speaker featuring sophisticated powered woofers, and imaging and soundstaging capabilities second to no speaker I've heard at *any* price. Unfortunately, I hadn't heard both before reviewing the first.

That said, the Scorpio gives you very impressive imaging and soundstaging and sleek, gorgeous, well-veneered good looks, while the Quatro gives you state-of-the-art imaging and soundstaging wrapped in a black sock (again, there's also a more-expensive "all-wood" version). Making these comparisons involves tradeoffs beyond the realm of sonic performance.

After my review of the Wilson MAXX2s was published in August 2005, after I'd bought them (I owe the bank another \$235 at the time of writing and then they're mine), and after I'd asked to review the Quatros but before hearing them, I got involved in an online tiff with a Vandersteen Audio enthusiast/reviewer who basically dismissed the

MAXX2, and Wilson designs in general, with what seemed a doctrinaire diatribe that I found alternately amusing and disturbing. You can bet the folks at Wilson Audio were not amused.

Now that I've had a chance to spend some serious time with the Quatro, I can agree with the Vandersteen protagonist that, overall, the Quatro at \$6995/pair does image and soundstage better than the MAXX2 at \$44,900/pair, and better than just about any other speaker I've heard at any price.

When I reviewed the MAXX2, I noted that its high-frequency resolution wasn't the state of the art but, as with any speaker, was the result of a series of design and performance compromises that reflect its designer's preferences and philosophy.

The Quatro—like all of Richard Vandersteen's speakers—is designed to retrieve as much recorded information as possible by providing phase and time coherence, as well as reliably flat amplitude response at the listening position. We'll see if JA's measurements fulfill that promise.

As an analytical tool that can reveal nearly everything about a recording—including, in most cases, where the microphones were placed—the Quatro is near the head of the class, and at a cost that makes it among the best loudspeaker values that I am aware of. While its impedance curve is claimed to be amplifier friendly at between 4 and 8 ohms across the audioband, its 87dB sensitivity means the speaker will require some power to reach high levels.

I found the Quatros' sonic picture extraordinarily detailed and musically convincing, and thoroughly enjoyed my time with them. I also found myself often watching and listening from the outside—enjoying, observing, and admiring, but not particularly engaged emotionally on a visceral level. Those were times when the speaker suffered from a "distortion" I call TMI, or Too Much Information. Some would say you can *never* have too much information. I disagree. The recording art aims at creating the *illusion* of reality. When the actor flies, I'd rather not see the wires.

Overall, however, the Quatro struck me as accomplished sounding and impeccably designed, and almost a full-range loudspeaker. Considering its price of \$7590/pair with in-line filters, it's also an incredible value—if not the greatest value in a loudspeaker that I can think of today. ■

ASSOCIATED EQUIPMENT

ANALOG SOURCE Continuum Audio Labs Caliburn turntable; Graham Phantom, Continuum Cobra tone-arms; Lyra Titan (stereo & mono), Clearaudio Concerto, Miyabi/47 Labs cartridges.

DIGITAL SOURCES Musical Fidelity kW SACD player, Alesis Masterlink BPT-modified hard-disk recorder.

PREAMPLIFICATION Manley Steelhead, Einstein The Turntable's Choice phono preamplifiers; Musical Fidelity kW Preamplifier.

POWER AMPLIFIER Musical Fidelity kW.

LOUDSPEAKERS Wilson Audio Specialties MAXX2.

CABLES Phono: CrystalConnect Piccolo. Interconnect: Acrolink 6100, Shunyata Antares, Transparent Audio Reference. Speaker: AudioQuest Volcano. AC: JPS, Shunyata Research.

ACCESSORIES Continuum Audio Labs Castellon magnetic isolation stand, Finite Elemente Pagode equipment stands; Audiodharma Cable Cooker; Shunyata Research Hydra 2, Hydra 8 power conditioners; ASC Tube Traps, RPG BAD & Abfusor panels, Hallograph Sound Field Optimizers; VPI HW-17F, Loricraft PRC4 Deluxe record-cleaning machines.

—Michael Fremer

MANUFACTURERS' COMMENTS

Vandersteen Quatro

Editor:

On behalf of the team that makes and markets Vandersteen Audio products, I'd like to thank Michael Fremer and John Atkinson for the professional and thorough review of our Quatro speakers. I'd like to provide some additional clarification on three points mentioned in the review.

John seemed puzzled by a midrange dip shown in *Stereophile's* "in-room" measurements. We are unable to duplicate this anomaly in our rooms and, as you can see from the quasi-anechoic measurements, the speakers are indeed very linear in both amplitude and time/phase. The speakers sounded good to me in Michael's room,

and we think this supports our design philosophy, which is based on research into how we hear. At all frequencies above the bass, we seem to be far more sensitive to the direct sound from the loudspeakers than to the reflected sound from the room boundaries, which arrives later.

John's standard impulse-response test is taken at 50", and this shows the tweeter slightly leading the midrange in fig.10. The Quatro owner's manual recommends a minimum listening distance of 6'. The impulse would have been more correct had the microphone been farther away and slightly lower.

John says Vandersteen speakers are sensitive to set up. This is only partially true.

Because of the dispersion characteristics and bass adjustments, the speakers are actually far less sensitive than most to position in the room. High-resolution, time- and phase-accurate speakers are somewhat more critical of the associated equipment that drives them, and setting the correct listening height/tilt to ensure time alignment is more critical. The detailed instruction manual makes the vertical adjustment simple by specifying the correct number of washers necessary to shim the support spikes to achieve the exact tilt needed for virtually any ear height.

Thanks again for the excellent review.

Richard Vandersteen
Vandersteen Audio