

Vandersteen Audio Kento Carbon Loudspeaker

- [REVIEW](#)
- by [Andre Jennings](#)
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For nearly two decades, my baseline audio system has comprised a pair of Vandersteen loudspeakers and four Vandersteen subwoofers. During that period, many other transducers have provided me with musical enjoyment. They've always sounded different in one area or another, including occasional increases in perceived resolution or clarity. But after evaluating them and returning to my baseline system, I've continued to remain completely satisfied with its purely cohesive presentation. I realize part of my satisfaction is due to having many years of experience with this sextet and their placement within the room. On the other hand, the visiting speakers have always performed to the installer's delight—far beyond his expectations at times. I believe this is due to my listening room's near optimal coupling with whatever speakers are in play. Because loudspeakers have seemed to perform excellently in my room, it has made listening to all of them a joy. The Vandersteen Kento Carbon is no exception; as you will read, it synchronized with the room in imaging and soundstaging pretty quickly, establishing itself in the top tier of loudspeakers I've reviewed.

After 25 years of exceptional service, the Vandersteen Model 5 loudspeaker has been retired and replaced with the Kento Carbon (\$39,475). The Kento Carbon is a four-way five-driver system, encompassing a 1" carbon tweeter, 4.5" Perfect Piston midrange, 6.5" tri-woven mid/woofer, and two 9" powered woofers. Replacing the award-winning Model 5 requires a speaker that offers improved performance, and Richard and Nathan Vandersteen believe they have found a way to do that. A key advancement is the use of side-firing 9" woofers, which—when used with the built-in, analog, low-frequency room-optimization/compensation controls—allow for increased 100Hz-to-200Hz integration adjustments in multiple spaces and locations, including placement near walls or out into the listening room. Vandersteen Audio says that "early measurements and listening show this speaker's performance will equal a good part of the Model Seven Mk II's, and [that it is] a significant step forward with its new proprietary technological features."

Vandersteen's tweeter is an exclusive 1", aerodynamic dual-chamber, transmission-line-loaded, carbon-dome model with ferrofluid voice-coil cooling. This is the same tweeter used in the now-retired Model 5a Carbon. The actual dome (minus the surround) is constrained-layer damped and constructed with two layers of carbon fiber plus a special-modulus resin—there are no other metals or materials used.

The midrange is the patented 4.5" Perfect Piston driver with a three-layer (carbon/balsa/carbon) cone mounted in a die-cast aerodynamic basket with neo-magnet assembly and ferrofluid cooling. This is the same midrange driver used in the flagship Model 7 Mk II.

The 6.5" tri-woven composite-fiber mid/woof with a precision-formed magnet assembly and copper Faraday ring is the same unit used in the Quatro Wood CT. This driver has a breakup mode far outside of its passband, which ensures linear behavior under all operating conditions. The dual 9" woofers have long-throw motor assemblies and are powered by an internal 400W Class B high-current amplifier with fully regulated switching power supply. Each woofer fires from opposite sides of the cabinet; this opposing-side mounting creates a counterforce that cancels each driver's potential for adding cabinet vibrations. Since the powered amplifier is an integral part of the Kento Carbon, the 9" woofers are protected from bottoming out with an electronic excursion limiter, in addition to an automatically engaged subsonic (below 20Hz) signal-attenuation circuit that's built in.

The primary internal crossovers are first-order (6dB/octave) on all drivers with corner frequencies at 200Hz, 900Hz, and 5kHz. These crossovers in conjunction with the physical alignment of the drivers make the Kento Carbon time-and-phase-aligned at the listening position, based on adjusting the speaker's rake-angle (tilt) for ear height at that location. The optimal listening window is approximately 6" (3" above and below the ear-height rake-angle setting).

The Kento Carbon's cabinet comprises constrained layers of high-density fiberboard panels that form a box-within-a-box structure. Even the corner bonding is a viscoelastic membrane that keeps the box-within-a-box construction intact. The special broadband elastomeric polymer between the inner and outer boxes, along with internal bracing, pushes the resonance frequency high enough to allow the material between the panels to eliminate/damp vibrations by turning them into heat. Internally, all the driver enclosures are sealed. The midrange and tweeter also have transmission-line terminations that disperse the energy exiting the rear of the driver diaphragms, preventing it from reflecting back and thereby avoiding time-smearing the sound.

The Kento Carbon is available in a variety of wood veneers and painted finishes (including any high-gloss automotive paint color). The pair that arrived for evaluation had an eye-catching automotive paint color called Volcano Orange. The vertical planes of the Kento Carbon's cabinet (front, sides, and rear) are trapezoidal with the lower sections wider than the tops. There is a graceful slope backwards on the front baffle, which sets the acoustic center of the driver array (coupled with the crossover network) for time-and-phase-alignment. Behind the front grille cover, which is an integral part of the front baffle and more than a frame for a decorative fabric, are three of the drivers—from top to bottom, the 1" carbon tweeter, 4.5" midrange, and 6.5" mid/woofer. The 9" powered woofers are situated on the sides of the Kento, near the base of the cabinet behind decoratively styled grille covers. An IEC power inlet for the internal power amplifier that drives the 9" woofers is located on the rear of the cabinet; also visible are a ground lug and the amp's heatsink fins. Equally spaced and horizontally aligned above the top of the woofer amplifier's heatsink are adjustment potentiometers for the 11-band, analog, low-frequency room optimization/compensation controls. Just above the room optimization/compensation controls, toward the right of the rear panel, are the low-frequency level adjustment and the low-frequency contour (Q) controls. The speaker terminal connectors are custom (7/16" maximum width), bi-wire, gold-plated barrier strips. There is one pair for the tweeter/midrange and another for the mid-woofer/woofer.

Like the Vandersteen M5-HP and the M7-HPB, the Kento Carbon requires a high-pass 6dB/octave crossover adjusted for 200Hz between the preamplifier output and the amplifier input—unless the amplifier has this 200Hz, high-pass, 6dB/octave crossover option built into its input (as do Vandersteen's M5-HPA monoblock amplifiers). The Kento Carbon owner's manual includes a detailed procedure for properly setting the crossover. The purpose of this high-pass crossover is to slowly and predictably lower, at 6dB/octave, the bass the Kento Carbon sees below 200Hz. The Kento's built-in 400W amplifier internally restores the low frequencies with an inverse 6dB/octave gain structure that—when combined with the signal from the external amplifier—creates a correctly re-established amplitude level for signals below 200Hz. Part of the benefit of this approach is that the system's main amplifier has less work to do by not being required to drive as much of the high-current-demanding low-frequencies below 200Hz. As a

result, the frequency range reproduced by the main amplifier (200Hz and above) makes the main amplifier's life easier, with the subjective benefit of a more open, transparent, and effortless sound.

Once unboxed, the Kento Carbons were set up in the same area where my reference speakers (and all visiting speakers) have sounded best, with an emphasis on achieving a cohesively balanced sound. After the Kento's distance, toe-in (relative to seating position), and rake-angle (based on my ear height from the floor at the listening location) were adjusted, Vandersteen Audio's Brad O'Toole and I proceeded to set the 11-band analog low-frequency room-optimization potentiometers—they are used to smooth out (not necessarily to completely flatten) the bass response in different listening rooms. Since no listening rooms are likely the same in bass response, this feature provides a significant benefit, including the ability to make level adjustments to help compensate for frequency reflection/cancellation anomalies due to a phenomena known as floor bounce in the 100–200Hz region. The initial low-frequency measurements showed how well the Kento Carbon did with a 20Hz tone, needing no adjustment, while the rest of the 20Hz–200Hz tones were within 4dB (most tone measurements were even better) of reference. This helps to explain why so many loudspeakers play low frequencies well in my room.

After these initial measurements, we made slight adjustments to the low-frequency room-optimization potentiometers to further smooth out bass response without trying to make it flat across the board. After completing this process, we played some good jazz recordings to adjust the overall bass output level for preference while maintaining a smooth and seamless transition to the mid/woofer. We also played acoustic bass tracks (there are two such tracks on the Vandersteen test/set-up disc) to dial in the level of the contour (Q) control. In my listening room, a Q setting of "4" proved to best complement my preferences, delivering well-tuned, powerful, and tight bass without any hint of overhang, sluggishness, or bloat. (This is a very short description of a more thorough process outlined in the owner's manual, which will be performed by the qualified dealer/specialist who installs the Kento Carbon.)

The Kento Carbons were driven by the two amplifiers I had on hand during the evaluation (a pair of custom/modified monoblocks and Vandersteen Audio's own M5-HPA monoblocks). Playback sources were analog (vinyl and 15ips and 30ips ¼" two-track reel-to-reel tape) and digital (streamed Tidal/Qobuz, local files via Roon/JRiver, and CD/SACD). The cables were from my normal selection, as well as a visiting set from AudioQuest (Fire XLR balanced interconnects and William Tell bi-wire speaker cables).

Right out of the box (after setup adjustments), the Kentos delivered a cohesiveness that was similar to my reference Vandersteen speaker/subwoofers setup. The soundstage and imaging were realistically satisfying in an organic reach-out-and-want-to-touch-it way. I could gaze deeply into the soundstage and easily see, in my mind's eye, the location of individual players. When properly setup, Vandersteen speakers tend to cast a soundstage that doesn't need the listening room's lights dimmed or your eyes closed to produce a realistically palpable image of the performers; these are traits I'm used to experiencing with my reference speaker/subwoofers combo, and the Vandersteen Kento Carbon didn't miss a beat in delivering an even higher level of organic realism.

After less than a week of run-in, the Kento Carbons settled down and began to open up even more. The lower midrange filled in while the upper midrange and treble gained additional

refinement. These ever-so-slight character shifts improved the performance of the speakers. The sound produced by the Kento Carbon never took a turn in a negative direction during the initial settling time or throughout the evaluation period. (These were Vandersteen Audio's demo pair, and they had seen hundreds of hours of use prior to arrival.)

The sound of the Kento Carbon is, first and foremost, extraordinarily cohesive—completely of-a-piece. It takes little effort to be convinced you are listening to realistically reproduced music. The integration is excellent from top-to-bottom, with no individual driver sticking out or drawing attention to itself. This level of cohesiveness was apparent with piano, with Count Basie's left hand dominating the keys on "Bluesville" in the midst of a full big band going all-out on 88 Basie Street [Pablo Records 2310-901], and also with Gene Harris' joyfully infectious ivory-tickling with his quartet on "This Masquerade" from Listen Here! [Concord CJ-385]. In either performance, the Kento Carbon locked onto and never let go of the piano and the surrounding instruments. The piano's range was faultlessly traversed by the driver array, as if the Kento Carbon were a single entity, leaving musical instruments three-dimensionally hanging in thin air across the soundstage.

More examples of this cohesiveness were observed with full-scale orchestral music, where, when the performance was exquisitely captured and transferred to the sources (digital, vinyl, or tape), the Kento Carbons were an open window on the musical presentation. A favorite live performance of mine is Rossini's *l'Italiana in Algeri* [Fonè 016, 45rpm], which is always entertaining and highly energetic. With the Kento Carbon, the soundstage was big and rich with boundaries that extended from well in front of the speakers to the perceived back of the performance hall—it was as though the wall behind the speakers didn't exist. Presentation width expanded far beyond the edges of the Kento Carbon's cabinets and continued back as far as the performance venue's width towards the rear of the hall. The recorded performance set the acoustic boundaries rather than the loudspeaker running up against a set of limitations that restricted expansion.

Soundstage and imaging resolution was also excellent in the way the Kento Carbon parsed vocal overdubs with ease, in addition to removing the fog around mass choral or instrument groupings (e.g. violin, viola, cello, bass, percussion, woodwind, brass sections). In the Rossini piece, the orchestra sections were easily identified, as were the individual groupings of instruments within the sections. Having the ability to focus on the totality of the orchestra, a section of the orchestra, or individual instruments within a section at your discretion created an interesting and exciting listening experience.

Bass performance was controlled, extended, and realistic sounding. The speakers reproduced synthesized bass that extended down into the mid-20Hz range with vigor. About 14 seconds into Yello's "The Expert" there is a synth bass note that can lack gusto or go missing-in-action on setups that don't extend their reach quite that far down. With the Kento Carbon in place, the system played this synthesized bass note—as it migrated from the mid-60Hz range down to the mid-20Hz octave—solidly, with full control, heft, and undiminished authority. The same can be said for the acoustic bass playing on "Troubled Man" from Ricky Lee Jones' *It's Like This LP* [Analogue Productions AAP 51056]. Coming in at nearly an octave higher than the lowest synth note on "The Expert," the low-E bass note in "Trouble Man" was reproduced with the same sense of power, visceral impact, and uncompromising control.

Midrange and treble response always sounded realistic, polished, and silky smooth. Every musical genre played effortlessly in a non-attention-seeking way. Even older 80s pop/rock tracks like Sade's "When Am I Going To Make A Living" or "Cherry Pie," Rickie Lee Jones' "We Belong Together" or "Living It Up," and Mick Hucknall's voice on Simply Red's "Holding Back The Years" or "Picture Book" were reproduced without any forward push in the upper midrange and lower treble (including the presence range), and without edge, brightness, or aggressiveness on top. This allowed the songs to always play effortlessly with excellent tonal balance from start to finish.

Some listening rooms are more absorptive (or reflective) than others. and many system components (including cables) in front of the speaker show a form of insertion-loss that can, at times, be perceived as unevenness across the audible frequency range. On the Model Seven and the now-discontinued Model 5, a rear-firing tweeter could be engaged, with its level and contour adjusted for such situations, room anomalies, and user preferences. The Kento Carbon (like the Trio CT and Quatro Wood CT) doesn't give you the option of engaging a rear-firing tweeter or of slightly increasing or decreasing the main tweeter (and midrange) level, like the controls on the Model 3 or earlier versions of the Model 2 (prior to the 2Ce Signature III) did. In the case of the Kento, I would have preferred at least a half dB more treble on Linda Ronstadt's "I Don't Stand A Ghost Of A Chance" from What's New [Asylum Records/Elektra 9 60260]. Near the start of the song, drummer John Guerin's lightly struck cymbals create a subtly sweet and smooth sound. The instrument is delicately set back in the mix to a point where it is still noticeable, but not so far back that it's indistinguishable. While still wholly audible with the Kento Carbon, these particular cymbal strikes were set even further back in the mix and required more of my concentration to latch on to than I'm used to.

As with most speakers, the optimal listening seat is usually the center position. In this location, the Kento is near revelatory in conveying extraordinary top-to-bottom cohesiveness. It should be noted that listening outside this zone can also be satisfying. Don't get the feeling there is the only one satisfying seat for the Kento Carbon (or any properly designed time-and-phase-aligned speaker), although the Kento's sound did seem more affected by physically standing up from the listening chair than my reference Vandersteen speaker/subwoofers combo is. The Kento sounds satisfying off-axis when you're moving around the room (like any other well-made speaker), but it sounds exceptionally special in the main listening position when the speaker is properly setup. I happen to have a secondary, far off-axis listening seat. While listening to the Kento in this location (a couple feet farther back from the main listening position and three feet from the right side wall), the soundstage shifted relative to my listening position, but that shift didn't become dominant to the point where the stereo image collapsed into one speaker.

While I've mentioned some of the Kento Carbon's individual attributes, it may be evident (even in those instances) that the whole of the loudspeaker's excellent presentation comes through. Circling back to the totality of the performance, I'll mention a blues piece by Albert King and Stevie Ray Vaughan, "Call It Stormy Monday" from the album In Session [Analogue Productions APB 7501 45, vinyl; STAX SXSA-7501-6, hybrid CD/SACD]. This opening track is a perfect example of how the Kento Carbon pulls the performance together. The music starts on the album (the studio-recorded session is much longer and starts before the song's track on the album) with King playing guitar, Michael Llorens laying down the beat on drums, and Gus Thornton on electric bass. Instantly, the feel of the music is apparent, with an infectious musical

groove that conjures a slow and steady mood. The Kento Cabon allows you to ease into this rhythm automatically. You hear (and feel) the drum's kick, the snare, and the continuously repeated propulsion of the hi-hat, while Thornton's electric bass creates the music's foundation. What becomes even more interesting is the organ playing of Tony Llorens that fills the listening room with a smooth overlay of harmonics, creating a sensation of saturating calmness. In the midst of this, King's guitar playing is always up front; the dynamics coming off his guitar are strikingly reproduced by the Kentos with every note change, transient attack, sustain, and finger slide—as well as his vibrato—rendered with remarkable clarity. While King's voice is unmistakable, the smoothness and emotion in his singing (and playing) is vividly apparent. The completeness of the performance confirms all of the musicians are in-the-pocket, and it seems evident they are having a wonderful time.

Interestingly, the Kentos capture Vaughan playing incredibly soft and low in volume during most of the beginning of this track, as if he's trying to stay in the background behind all the other performers. Vaughan continues in this style until around the time King says, "I can't hear you." Suddenly Vaughan's volume level increases and his guitar playing shifts through another few gears, and the two are now playing together and trading individual guitar licks that are downright soulfully satisfying. The Kento Carbons made "Stormy Monday" sound excellent on a bright and sunny Friday afternoon. This performance was one where the Hamilton, Ontario, studio session seemed to be right in front of me, and I could observe the preferences selected on the mixing board for placement of each performer's location, the locked-in tempo of the performance, and the ease with which the group played as a synchronously cohesive unit. With jazz, classical, synth-pop/electronic-pop, soul/R&B, rock, and blues the Kento Carbon is a capable speaker that's ready to reproduce whatever genre of music (even ones not mentioned in this report) in a thoroughly cohesive way.

To this same end, the Kento Carbons kept their poise throughout my evaluation, never adding any overt highlighting to the music. The speakers are an extremely successful time-and-phase-aligned (coherent) design—the essence of the electrical crossover and physical driver alignment Vandersteen Audio aims for.

Some of you may have noticed I've used the word cohesive, and its derivatives, a lot throughout this evaluation. That's because this word best describes the time-and-phase-aligned (coherent) driver/crossover arrangement of the Kento Carbons' whole assembly (including the minimum-baffle cabinet-within-a-cabinet enclosure), which becomes a single entity operating in lockstep as a complete system. Because of this extraordinary cohesiveness, music is easily reproduced by the Kento Carbon and manifests itself in three-dimensional form. Even though you can't physically see the performers, your ears will tell you what is happening directly in front of you as if you could watch them.

If you are the type of listener who desires sound that is demonstrably more truthful to the signal feeding your speakers, the Kento Carbon is a product to evaluate. There is something unique about the way a time-and-phase-aligned speaker replicates the electrical waveform, making it sound of-a-piece from top to bottom. Some people are not sensitive to this impression; others are. If you are one of the latter, if you are able to distinguish this time-and-phase-aligned acoustic representation of the waveform and feel that the sound is truer to life and want that kind of sound from your loudspeaker, the Kento Carbon will surely make a most

favorable impression when properly setup. Prepare to enjoy the listening experience with whatever type of music floats your boat. At the very least, an audition is highly recommended.

Specs & Pricing

Type: Dynamic loudspeaker with active bass

Tweeter: 1" exclusive aerodynamic dual-chamber, transmission-line-loaded carbon dome

Midrange: 4.5" patented Perfect Piston

Mid/woofer: 6.5" woven-fiber cone

Woofer: Two 9" aluminum drivers with long-throw motor assemblies

Frequency response: 23Hz–40kHz (± 3 dB)

Subwoofer amplifier: 400W Class B high-current with fully regulated switching power supply

Impedance: 8 ohms (± 3 ohms)

Crossovers: First-order/6dB per octave, 200Hz, 900Hz, 5000Hz

Sensitivity: 87dB (2.83v @ 1 meter)

Recommended amplification: 40W-to-200W into 8 ohms

Dimensions: 12" x 47" x 19"

Weight: Approx. 170 lbs. each

Price: \$39,475

VANDERSTEEN AUDIO

116 West Fourth St.

Hanford, CA 93230 USA

(559) 582-0324

vandersteen.com

Associated Equipment

Analog tape: Otari MTR-10 Studio Mastering tape deck with custom Flux Magnetic Mastering Series repro head and secondary custom tube output stage, Studer A820 Studio Mastering tape deck, ReVox G-36 tape deck

Analog vinyl: Basis Audio Debut Vacuum, Basis Audio 2800 Vacuum; Basis Audio SuperArm 9, Basis Audio Vector IV (x2), Graham Phantom III; Lyra Atlas, Lyra Atlas SL, Lyra Etna, Lyra Etna SL, Lyra Titan-i, van den Hul Colibri XGP, Hana SL

Phonostage: The Raptor (Custom), Ayre P-5xe, Musical Surroundings Phenomena II+

Preamp: Dual Placette Audio Active linestage

Amp: Custom/modified solid-state monoblocks, Vandersteen M5-HPA monoblocks

Speaker: Vandersteen Model 3a Signature with dual 2Wq subwoofers and dual SUB THREE subwoofers, Joseph Audio Pearl 20/20 Graphene, Vandersteen Kento Carbon

Cables: AudioQuest, Shunyata, Tara Labs, Acoustic Research, Cardas, and custom cables

Racks/accessories: Minus-K BM-1, Neuance shelf, Maple wood shelf, Symposium Ultra, Aurios Pro, Pneuance Audio, Walker Audio, Klaudio RCM, Kirmuss RCM, VPI RCM, Clearaudio Double Matrix Professional Sonic RCM