VANDERSTEEN 3A LOUDSPEAKER

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Four-way, bi-wirable, floor-standing loudspeaker. Drive units: critically damped, dual-chamber metal-alloy dome tweeter with ferrofluid cooling; 4.5" midrange unit with patented, low-diffraction magnet, curvilinear polycone and ferrofluid cooling; 8" long-throw woofer with curvilinear polycone; 1.5", two-layer voice-coil, and 400z focused-gap magnet structure; 10" long-throw Acoustic Coupler (sub-bass driver) with dual spider, critical damped cone; I.5', four-layer voice-coil on a ventilated aluminum former. Crossover frequencies: 35Hz, 60OHz, and 5kHz. Frequency response: 26Hz-30kHz +/-3dB 30Hz-22kHz +/- 1.5dB. Sensitivity 88dB/W/m.. Impedance: 6 ohm nominal 4 ohms minimum. Amplifier requirements: 100Wpc-200Wpc into 8 ohms. Amplifier should be stable into 4 ohms. Dimensions: 48" (1220mm) H by 16" (406mm) W by 10.25" (260mm) H. Weight: 89 lbs net. Serial numbers of units tested: 5458A 5459A. Price: $2595/pair; $2795/pair with Sound Anchor braces. Approximate number of dealers: 108. Manufacturer Vandersteen Audio 116 W. Fourth St. Hanford CA 93230. Tel: (209) 582-0324.

High-end-audio manufacturers are both more and less adventurous than their more mainstream contemporaries. While mainstream-audio manufacturers will almost invariably change their models every year, the changes are more often than not cosmetic, at least in between successive models. High-end manufacturers, on the other hand, will keep the same model in the line for several years, but make cosmetically invisible refinements along the way.

Vandersteen has been one of the most conservative companies in that respect; the original Model 2 underwent only one significant cosmetic change in over a decade, yet was sonically updated several times in that span. Now, two years after its introduction, we have the first modification to the Model 3 (originally reviewed by JA in Vol.16 No.3, p.140): the 3A.

In most physical respects, the Vandersteen Model 3A is identical to its predecessor. A cutaway photo reveals four drivers and three separate sub-enclosures, the bottom of which is the largest, for the rear-facing 10" driver that Vandersteen refers to as an "Active Acoustic Coupler." It is, as the name implies, actively driven [though it shares some of the characteristics of a passive radiator - Ed.]. Since the AAC is designed to cover primarily the range below 35Hz, I would be inclined to call it an integral sub-woofer; but perhaps Vandersteen chose to give it another designation to distinguish it from the company's dedicated, outboard subwoofers.

Stacked atop this acoustic-coupler enclosure are one enclosure for the 8" woofer, and another for the midrange and tweeter. The baffles for each of these front-facing drivers are individually sized to minimize diffraction problems. As in other Vandersteen designs, the 3A has a relatively solid top piece above the tweeter to complete the external cabinet design and anchor the four dowel corners that give shape to the grille-cloth "sock" covering all of this internal cabinetwork. Though the large cutout in this top is clearly designed to minimize cavity resonances, I continue to be concerned, as I was with the 2Ce, that this top piece might be reflecting energy from the tweeter (thus defeating some of the care that went into the anti-diffraction efforts elsewhere). Nothing in my listening, however, indicated to me that this might be a problem.

Vandersteen's 4.5" midrange driver is the same as that used in the earlier Model 3, and is designed specifically to minimize reflections from the driver's subport structure - the magnet and frame - at the back of the cone. The magnet is made of neodymium, which, because of its magnetic efficiency, can be very small relative to its strength; the basket, or frame, is as small as possible, while still providing adequate support for the magnet and cone. Both this midrange driver and the 3A's metal-alloy dome tweeter are assembled for Vandersteen by Vifa in Denmark.

Consistent with Vandersteen's design philosophy, the 3A uses first-order cross-overs throughout. Since the correct vertical listening axis is invariably more critical with such a design, detailed instructions are provided to enable the user to tilt back the loudspeaker by an appropriate amount, a function of both the listener's distance from the loudspeaker and the height of his or her ears. A brace extends from the back of the cabinet to allow the user to properly set the tilt-back by adding spacers to the furnished spikes. The 3A is furnished with a standard brace; we were also sent a heavier duty, optional Sound Anchor brace ($200), which attaches not only to the bottom of the cabinet but to the rear as well, just above the acoustic coupler. It may therefore also act to further brace the cabinet, though no such claim is made in the owner's manual.

Dual-input, screw-type barrier terminals, for either the recommended bi-wiring or for bi-amping, are located at the rear of the enclosure, along with level controls for both the midrange and tweeter. These level controls are limited to a useful range of +2 to -3dB.

So far, the description of the 3A tracks that of the 3 almost down the line. But the 3A incorporates a number of those invisible refinements. The woofer/acoustic coupler interaction has been modified for a more extended bass response (though the specs don't reflect any change here). The acoustic coupler itself has benefited from development research conducted for the soon-to-be-introduced Model 5, and now has an aluminum-alloy cone and an altered magnet assembly. It also has a new, shaped pole-piece with copper end-rings. The latter are said to result in a longer linear excursion and consistent impedance throughout the driver's range of movement.

The midrange driver is unchanged from the Model 3, but now undergoes an extended factory break-in period. Following this break-in, the drivers are calibrated into matched pairs. Though the 3A's tweeter is essentially the same as that in the 3, modifications are said to improve its transparency and resolution. The 3A's crossover uses the same quality-level parts (and internal cabling) as the 3, but has been reconfigured physically, and modified for better phase compensation .

As was the case with the original Model 3, the 3A has LED overload indicators wired across the woofer terminals that become visible through the grille-cloth when the loudspeaker is being overdriven. They never illuminated for me, I guess I didn't drive the 3As hard enough to energize them.

Finally, the maximum thickness of the 3A's cabinet has been increased from 1.25" to 2". Overall, however, the 3A is only spec'd at one pound heavier than the 3, so the increase in cabinet density appears to be minor.

Owners of older Model 3s can have their loudspeakers upgraded to current specifications for a reasonable $650/pair, which includes freight costs from the manufacturer to the owner.

SYSTEM

The Vandersteen was auditioned with a Krell KPS-20i CD player used as a transport and

feeding a Mark Levinson No35 D/A converter through a Kimber AGDL digital coaxial cable TARA Labs Master RSC (unbalanced) connected the Levinson converter to a Rowland Consummate preamp. The primary power amplifier in the system was the Krell KSA-300S. Preamp-to-power-amp interconnects were Monster M1500s or AudioQuest Diamonds (both unbalanced). Loudspeaker cables were either a Monster M1.5 bi-wire or an AudioQuest Midnight/Sterling Hyperlitz bi-wire set (Midnight on the bass, Sterling for the midrange/treble).

SOUND

I set up the Vandersteen 3As in my (approximately) 26' x 18' x 11" listening room firing on a semi-diagonal, a setup which has produced fine results with at least six pairs of loudspeakers. (It not only appears to result in a smoother in-room bass response, but results in the nearest side walls slanting severely away from the loudspeakers, minimizing adverse side-wall reflections.) The floor of the room is a carpet-covered slab foundation, and the room itself has a number of absorbent panels, ASC Tube Traps, and ASC Shadow Casters strategically arrayed. There's also a 4' x 8' assemblage of diffusers and a single 4' x 4' absorber - both from RPG - on the short wall farthest from the loudspeakers. Three additional acoustic panels are hung from the ceiling just out from the opposite short wall (which has the largest window in the room, covered with closed, cloth vertical blinds). The ceiling of the room is composed of wood planking on round shaved-log beams (known in New Mexico as vitas); the walls are of Sheet rock. When I began my listening, the Krell player cum transport was not available to me, so I substituted a Pioneer PD-65 and used its digital output through an Audio Alchemy DTI to drive the Levinson No35. Kimber AGDL cables were used for both digital links.

These early listening sessions, during which I also used the Monster M1500/ M1.5 cables proved somewhat disappointing. The sound wasn't "bad" on an absolute scale, but it sounded much softer and sweeter than life. Sibilants, even on recordings on which they're relatively pronounced, were softened. The best description of the overall sound would be pleasant and polite. Details were present, but never intrusive - as they sometimes are in real life. There was a lack of snap and of microdynamics - the crisp definition that conveys reality. Depth and imaging were respectable, but not particularly riveting. In short, I was enjoying an easygoing sound, but I wasn't being drawn in to the reality of the performances.

The sound of the 3A was not entirely at odds with my impression of Vandersteens in the past - a little warm and forgiving rather than analytical and detailed - which is why I didn't immediately look for solutions. But after a couple of days of this, I was certain that something had to be done. My first reaction was to rearrange the listening room and try other setups - the diagonal setup I'd chosen didn't allow me to try the setup guidance suggested by Vandersteen in their excellent owner's manual. I wasn't concerned about the tilt-back of the 3As, as I had carefully adjusted that aspect of the setup. The 3As were also spiked with the furnished cones, and, prior to doing any listening, I had run them in with moderate-level pink noise for more than 75 hours.

Before rearranging everything, however, I took careful stock of the rest of the system - most especially, the Pioneer player/transport and DTI interface. I had used the Pioneer with the Levinson No.35 in another room with another system, and had found it a surprisingly good, if unlikely, combination. But it had erred then in the direction of warmth -unlike the Krell KPS-20i, either by itself or driving the No.35. Fortunately, the KPS-20i became available to me again, so I reinserted it into the system replacing the Pioneer/DTI combination.

What happened will not be easily accepted by those who don't accept the proposition that transports can have an important effect on the sound. My impression of the system - and

of the 3A - was transformed. On a sliding scale of values, one could say that the difference was small. But it was much like, if I may use a video analogy, the difference between correct flesh-tones on a television and those that are very subtly green. It takes only a slight adjustment of the tint control to correct such an error, but this makes the difference between something which is enjoyable and something which is vaguely irritating.

The initial entry in my listening notes following the reinsertion of the Krell transport reads, "Wow. All kinds of things are happening right now that were wrong before. Voice is in tighter focus . . . kettle drums are tighter, with more power and snap. There's a subtle but noticeable increase in depth.

More life. . . better sense of microdynamics. Still a slightly forgiving sound, and I'd like a bit more snap and air on top, but now the lights are on, and the motor is running." Any thoughts I might have had about needing to rearrange my listening room receded into the background.

The improvements were audible across the spectrum, though I suspect that the real improvements were in the upper-midrange/treble region - which translated into a subjective impression of better performance everywhere. The 3A was now cranking on all cylinders. The sound still sounded a bit warm and sweet - very much in that Vandersteen tradition - but now there was real detail and clarity to go along with it. The top end was pristinely clean. Sibilants remained generally sweet and inoffensive, yet now there was no question of their differences from recording to recording.

The character of a singer's voice was clearly presented, for example, the gravelly edge to the vocal in "Superman's Song," from the Crash Test Dummies' The Ghosts That Haunt Me (Arista ARCD-8677). The sound was now open and transparent, and while I might still have liked a bit more air at the very top (even after turning the tweeter level up to +1, where I left it for most of my listening), neither did I particularly miss it.

The 3A proved to be a solid performer at the bottom end as well. I didn't find the speakers to extend as low into the bass as their specs indicated - somewhere in the low to mid-30Hz is my estimate of the extent of their lowest useful response. Still nothing to sneeze at. The bass had both punch and weight - if it couldn't match my recollection of the performance of either the Infinity Epsilon ($14,000/pair) or the NHT 3.3 ($4200/ pair) in either of these categories, remember that the 3A, at $ 2,595.00/pair, is the least expensive loudspeaker by a significant margin (dramatic, in the case of the Infinities). If it lacked the subjective weight of the Veritas v2.8 or even the Mirage M-7si in this same room, it also lacked some of the subjective mid- and upper-bass rise of both of those loudspeakers.

The 3A nonetheless handled with aplomb everything from the bass drum on Enya's "The Long Ships," from Watermark (Geffen 9 24233-2), to the deepest bass passages on "Napalm for Breakfast " from The Apocalypse Now Sessions (Ryko RCD 10109) (originally released on LP by Wilson Audio).

However, the introductory drumstrokes on the Jurassic Park soundtrack (MCA MCAD-10859) did cause the speaker to break up at realistic - though not unreasonable - levels. The drumstrokes didn't cause the woofer to bottom, but did result in a distorted, fluttery sound until I turned down the volume to a level that degraded the sheer visceral impact of the piece.

I wouldn't expect this to be a problem in a smaller listening room (mine has a volume of about 5000ft^3). I have found this particular passage to be a problem for other loudspeakers - including the Infinity Epsilons when they're driven with insufficient bass power.

The slight warmth I noted in the sound of the 3A didn't intrude in any way on its midrange performance. Initially (and with the original setup), I thought I heard a trace of midrange nasality in the speaker, but turning the midrange level control back to -1dB, combined with the change in transports, rendered it inaudible. Solo voices were timbrally right. Chorus had enough inner definition to make it clear I was listening to a collection of individual voices. There was also a precise rendition of depth and image placement. On the new All Star Percussion Ensemble 11 (Golden String GSCD 013), the instruments were precisely positioned in both width and depth. I should also add that those microdynamics were now rewardingly precise.

The "Mapping the Soundstage" tracks both from the new Stereophile Concert CD (STPH005-2) and the Sheffield Lab/XLO Test & Burn-in CD (Sheffield Lab 10041-2-T) were precisely handled, though I obtained little sense of imaging outside the boundaries of the loudspeakers. This is not an unusual occurrence for me - only rarely have I achieved it, and only then on select recordings. Perhaps this is because I prefer a tightly defined central image, and tend to set up a system accordingly. The recommended positioning for the 3A is firing straight ahead; for me, this resulted in insufficient soundstage focus, so I used a slight degree of toe-in (the inside faces of the cabinets remaining clearly visible at the listening position, however).

The 3A remained just a bit on the sweet side of neutral throughout my auditioning - even after I substituted a set of Audio-Quest cables, which were more crisply detailed than the softer-sounding Monsters. The 3A never had quite the "jump factor" of the Energy Veritas v2.8, or the sheer soundstage size and overall dynamics of either the Veritas or the Mirage M-7si - two loudspeakers which have recently spent significant time in my listening room. But the 3A made up for that in sheer listenability - a self-effacing quality which, with the proper selection of associated equipment, does not compromise the reproduction of natural detail and dynamics. And you shouldn't assume that only expensive transports and processors will bring the 3A to this level of performance. I would, however, recommended that you avoid combining the 3A with associated equipment that in itself sounds overly warm or rich.

AMPLIFICATION

In addition to the Krell KSA-300S, I drove the Vandersteen 3As with the McCormack DNA-05 I reviewed in February (Vol.18 No.2). Though the Krell has more inner detailing and sheer clarity than the McCormack, the latter doesn't sacrifice much. In trade, it also sounded more forward and immediate than the Krell through the Vandersteens, providing a more "palpable presence" (pardon the cliché) than was evident with the Krell. And the bass slam with the McCormack would have been astonishing had I not heard it before on other loudspeakers. The McCormack's lows were extremely satisfying - perhaps even more so than that of the Krell, which reins the bass in under tighter control. The Krell was more accurate, perhaps, but less gutsy-sounding than the DNA-0.5 with the Vandersteens. Vandersteen more often than not uses McCormack amplifiers at shows - it's apparent that the choice isn't merely one of convenience.

THIEL COMPARISONS

Since the original Vandersteen Model 3 wasn't available to me, it would be a dicey proposition for me to comment on how great an improvement the new model is - specially since it's been nearly two years since I last heard the Model 3, and in a different room. Vandersteen's track records on improvements in their other models - particularly the Model 2 - has been consistently good, however, which at the least would seem to make an audition of the new model mandatory for owners of the original design. What I did do, however, was compare the Vandersteen Model 3A with one of its most popular competitors, the $2750/ pair Thiel CS2 2. In most respects, the two were different in the expected ways. Vandersteens have always struck me as sounding warmer and richer than

Thiels, and so it was with the 2.2 vs. the 3A. The midrange of the Thiel was a little more laid-back. Its top end was crisper and more tightly focused, but also less forgiving of mediocre program material.While the Thiel's bass was tighter than that of the Vandersteen, it also appeared less extended. The bass drum on Enya's Watermark didn't energize the room in the same shuddery fashion as it had on the Vandersteen. But it was hardly anemic, and, at the same time, was subjectively "faster" than that of the Vandersteen. The Thiel also had similar problems reproducing that bass track from the Jurassic Park soundtrack. Which loudspeaker did I prefer? Don't pin me down. I liked the bass and the relaxed, forgiving nature of the Vandersteen, but also the crisper, tighter focus of the Thiel (I like detail as long as it isn't thrown at me with a shovel). Both are superior performers, but even in this price range you have to choose your compromises. And if size is a consideration in your listening room, the Vandersteen is considerably larger and more visually dominant.

MEASUREMENTS

JA measured the Vandersteen 3A and provided me with the results after I completed my listening tests and wrote up the results. The Vandersteen's sensitivity measured lower than specification at an estimated 85dB/W/m (B-weighted). Its impedance is shown in fig. 1. The magnitude remains below 6 ohms for much of the range, and dips to a minimum of 2.8 ohms at 35Hz - this, I assume, the tuning of the active acoustic (bass) coupler. This is a moderately demanding load, though the phase angle is low, except in the low bass. The moderate changes due to the various settings of the midrange- and tweeter-level controls can also be seen in fig. 1 . Also visible are small ripples in the magnitude plot between 300Hz and 400Hz - possibly due to cabinet resonances - and a ripple just above 25kHz indicating the tweeter resonant

Fig.2 shows (from left to right) the nearfield responses of the active Acoustic Coupler, the woofer, and the midrange unit, the latter two spliced to quasi-anechoic measurements taken at a 50" microphone distance (The axis was 39" above the bottom of the cabinet.) The output of the Acoustic Coupler peaks at 32Hz. It has some rough-looking resonances in the upper part of its range, but they're 15-20dB down in level, and, of course, directed to the rear of the loudspeaker. The main woofer has a generally smooth pass-band response, though it has a number of small peaks in its upper-range response as it rolls off above its upper crossover frequency. The general trend of the midrange and tweeter response is quite linear, though some clearly visible response ripples - particularly from 1kHz to just above 2kHz - would appear to be due to reflections from the cabinet top and its support rods. The sharp peak at about 26kHz is the ultrasonic tweeter resonance.

Fig.3 shows the overall response of the Model 3A averaged across a 30 horizontal window (again, measured at 39" from the bottom of the cabinet, 50" away). The bass is down by 6dB at 23Hz, and very flat up to about 500Hz - both excellent results. There is a mild suckout on this axis just below 1kHz, presumably due to less-than-perfect integration between the woofer and the midrange units at this microphone distance. The slight roughness just above 1kHz may be the cause of the slight midrange coloration I noted prior to backing off a notch on the midrange level control, but I wouldn't run too far with this supposition. The general response trend of the 3A is admirably flat.

The effects of the midrange- and tweeter-level controls set to their maximum and minimum positions, after subtracting out the actual response of the loudspeaker, are shown in figs.4 and 5. Both controls have a small effect on the range below their primary-response region - and opposite in direction to the primary-response change. But the limited effect of the controls results in a usable range of operation, and no setting of the controls is likely to seriously degrade the 3A's performance The horizontal response family of the Vandersteen 3A, with any on-axis response deviations subtracted out so that the on-axis response appears as flat, is shown in fig.6. That response notch at just below 1kHz

deepens at extreme off-axis angles. The overall dispersion through the midrange and top end - making allowances for the small ripples caused by cabinet reflections - is otherwise excellent. The vertical-response family (fig.7) indicates that listeners are better off slightly below the optimum axis than they are above it. Translated, that means that it would be better to err on the side of a slightly too-great cabinet tilt-back than not enough.

The impulse response on the tweeter axis, shown in fig.8, is very good, with a time-coherent shape and a small amount of damped ultrasonic tweeter ringing. The time-coherence of the 3A is even clearer from the step response (fig.9), which reveals a very good step shape. The small plot wrinkles just below and above the 6 millisecond mark in fig.9 are probably reflections from the cabinet structure, and are also visible - though less obviously so - in fig.8.The cumulative spectral-decay, or waterfall, plot is shown in fig. 10. There's some delayed energy in the midrange - again, possibly reflections rather than resonances. The high-frequency response is, however, very clean (the ridge at about 15kHz is due to the computer monitor). All told, this is a very fine set of measurements of a very well-designed loudspeaker.

CONCLUSION

The Vandersteen 3A certainly is deserving of the same praise that's been given to its predecessor, the Model 3. The 3A sounds terrific with a wide range of program material. If it does this by sounding just a bit sweet and forgiving, it doesn't go so far in that direction that it's insensitive to the equipment feeding it. As with all good loudspeakers, it will repay careful system-matching.

Vandersteens have long been the sort of loudspeakers that, once you hear them, you start figuring out a way to buy them. If you audition them and go home $2600 lighter in the wallet, don't come crying to me.