2023'S BEST HI-FI

THE PRODUCT OF THE YEAR AWARDS

stereophile

ONLINE AUTHORITY:
STEREOPHILE.COM

ESTELON AURA

CLEAN, OPEN, DYNAMIC

AUDEZE LCD-5 'PHONES
P.129

ACCUPHASE A-300
POWERFUL & SEDUCTIVE

PRIMALUNA EVO 100
GROUNDBREAKING PHONO

NU-VISTA 800.2
MUSICAL FIDELITY AMP
KEEPS A TIGHT GRIP

DECEMBER 2023
$8.99 US $10.99 CANADA

0 71486 34967 9 1 2>

KALMAN RUBINSON

Estelon AURA

LOUDSPEAKER

I've been watching Estelon since they came on the market in the US. Their striking appearance grabs the eye, but, preoccupied with other brands and reviews, I was able to deny them serious attention until now.

I had my reasons—especially price. The prices of those earlier Estelons were a poor fit for my budget. I was also troubled by the fact that, despite rhetoric about driver and component choice, advanced cabinet materials and construction, and fastidious engineering, Estelon has been stingy with details and specifications—not a complete disqualifier but rather a missed opportunity to appeal to objectivist proclivities.

What changed my mind? First, while Estelon is deservedly known for the elegance of its designs, the AURA is, to me, the cleanest design the company has yet achieved. The black grille tapers from top to bottom in clear counterpoint to the clean, curved white body, which widens top to bottom and seems to levitate just barely off the floor. The effect is unfussy and graceful. Had I been asked my choice of colors, I might have ordered black—the only other color, besides white, that the AURA comes in—but black fails to make the bold fashion statement the white speaker does. Second, at $19,900/pair, the AURA is much less expensive than those earlier models, including the Forza reviewed by Michael Fremer and the XB Diamond Mk.2 reviewed by Jim Austin.[1] $20,000 is still a lot of money for almost anybody, and any claim that $20,000 is affordable for a pair of speakers would likely be ridiculed by non-audiophiles as well as many audiophiles. Still, it is in range to many more potential buyers than Estelon's other offerings.

Estelon remains stingy with technical information. For example, while they state a frequency range, they do not specify a deviation envelope, plus or minus how many dB. When I asked Estelon for additional data, I learned crossover points (77Hz, woofer–midwoofers; 2.1kHz, midwoofers–tweeter) but not slopes or orders of the crossovers. Still, I was so taken with the design and appearance of the AURA that I went back and read those earlier Estelon reviews. Both offered limited technical specifications, but the speakers were praised by the reviewers (MF and JA2), and both measured well (JA1). That's good enough for me.

Arrival and setup

The AURAs arrived packed in individual, foam-braced corrugated boxes enclosed by a stronger box with an integrated wood pallet. The test pair came from Estonia, of course, and was "broken in" as a shop demo

1 Estelon Forza ($149,000–$163,000/pair) reviewed by Michael Fremer in November 2021. Estelon XB Diamond Mk.2 ($58,000–$65,200/pair) reviewed by Jim Austin in October 2022.

SPECIFICATIONS

Description Three-way, four-driver floorstanding loudspeaker in a sealed, "thermoformed composite" enclosure. Drive units: 1" (26mm) Scan-Speak textile-dome "Illuminator" tweeter, two 5" (130mm) "Satori" Egyptian Papyrus-cone midwoofers, one 10" (250mm) "Faital" hard-pressed paper-cone woofer. Kubala-Sosna internal wiring. Frequency range: 35Hz–25kHz. Impedance: 4 ohms (minimum 2 ohms at 58Hz). Sensitivity: 90dB/2.83V/1m. Minimum amplifier power: 30W. Recommended room size: 160–645sqft. **Dimensions** 53.7" (1366mm) H × 15.1" (384mm) W × 14.4" (367mm) D including base. Net weight: 75lb (34kg) each. Shipping weight: 240lb (109kg) for the pair. **Finishes** Black, White. **Serial numbers of units reviewed** F35204A/B. Manufactured in Estonia. **Price** $19,900/pair. Approximate number of US dealers: 15. Warranty: 5 years. **Manufacturer** Alfred & Partners OÜ, Kukermiidi 6 Tallinn 11216, Estonia. Email: info@estelon.com. Web: estelon.com. US sales agent: Aldo Filippelli. Tel: (630) 484-7577. Email: aldo@estelon.com.

at a US AURA dealer before being shipped to the local dealer (Stereo Exchange), who delivered and unpacked them. The speakers and packaging were pristine on arrival, attesting to the competence of the packaging design and execution. Included with the speakers were eight adjustable spikes, eight matching floor-protector discs, two pairs of cotton gloves, a polishing cloth, and a user manual.

Placed in the usual "sweet spots" at the far corners of the carpet and lifted ever so slightly by the small spikes, the AURAs were eye candy, as expected; their graceful simplicity would suit almost any room. Fit and finish of the proprietary, mineral-filled cabinet and drivers was flawless. The unusual shape and angled top avoid parallel internal surfaces. With the grille in place, the only notable exterior features are the gently arched base plate, which is separated from the main cabinet by a 2cm gap to allow for the output of the downward facing 10" woofer and the speaker terminals, which are almost hidden under the bottom rear of the main cabinet. The AURAs' appearance benefits from the accent provided by the grille, and I am pleased to say that I preferred to listen to them with the grilles in place. If that is a consequence of a visual bias, so be it.

With the grille removed, one sees a vertical M-T-M arrangement, the 1" Scan-Speak

tweeter flanked by a pair of 5" midwoofers near the top of the speaker. The crossover between the tweeter and the midwoofers is at 2.1kHz; the tight spacing results in a midwoofer-midwoofer spacing of about a wavelength at that frequency, the tweeter-midwoofer spacing half that. Such an arrangement could cause beaming interference, but in a vertical array, it would only be an issue above or below a normal seated position.

Estelon calls these drivers midwoofers not midrange drivers because their range extends down to a low 77Hz, where the down-facing woofer begins to take over. The center of the M-T-M trio is about a

MEASUREMENTS

I measured one of the Estelon Aura loudspeakers, serial number F35204B, in KR's apartment, using his NAD C 298 amplifier for the testing. I measured the Estelon Aura's impedance with Dayton Audio's DATS V2 system and used DRA Labs' MLSSA system with a calibrated DPA 4006 microphone to measure the speaker's behavior in the farfield and an Earthworks QTC-40 mike for the nearfield responses. Kal and I lifted the Aura on to a dolly for the measurements, but to minimize the effect of the first reflection from the ground, I measured the response and dispersion with the microphone at 1m rather than my usual 50".

The Estelon Aura's sensitivity is specified as 90dB/2.83V, presumably measured at 1m. My B-weighted estimate was slightly lower, at 86.8dB(B)/2.83V/m. Estelon specifies the Aura's nominal impedance as 4 ohms, with a minimum value of 2 ohms at 58Hz. The speaker's impedance magnitude (fig.1, solid trace) varies considerably but lies above 4 ohms for almost the entire audioband, dropping below 4 ohms only in the bass. The minimum value was 1.9 ohms at 60Hz. The electrical phase angle (fig.1, dotted trace) affects the equivalent peak dissipation resistance, or EPDR.[1] This lies below 3 ohms through most of the bass and midrange and below 2 ohms between 10Hz and 36Hz and between 57Hz and 92Hz. It drops below 1 ohm between 61Hz and 71Hz, with a minimum EPDR of 0.85 ohms at 65Hz. The Aura is a very demanding load for the partnering amplifier.

When I listened to the enclosure with a stethoscope, I could hear a faint resonance in the upper midrange on the sidewalls. Using a plastic-tape accelerometer, I found two high-Q modes on the speaker's sides, at 406Hz and 1100Hz, as well as some low-Q activity at frequencies between these two modes (fig.2). However, the relatively high Q and the high frequencies will work against this behavior having audible consequences.

I was initially puzzled by the shape of the Estelon's impedance magnitude trace in the bass. The saddle centered on 60Hz lying between two small peaks suggests some sort of reflex alignment. However, KR clarified for me that the Aura's woofer is loaded with a sealed enclosure and crosses over to the two midrange units at a low 77Hz. The impedance peak at 105Hz will therefore be due to the crossover.

1 EPDR is the resistive load that gives rise to the same peak dissipation in an amplifier's output devices as the loudspeaker. See "Audio Power Amplifiers for Loudspeaker Loads," *JAES*, Vol.42 No.9, September 1994, and stereophile.com/reference/707heavy/index.html.

Stereophile Estelon Aura Impedance (ohms) & Phase (deg) vs Frequency (Hz)

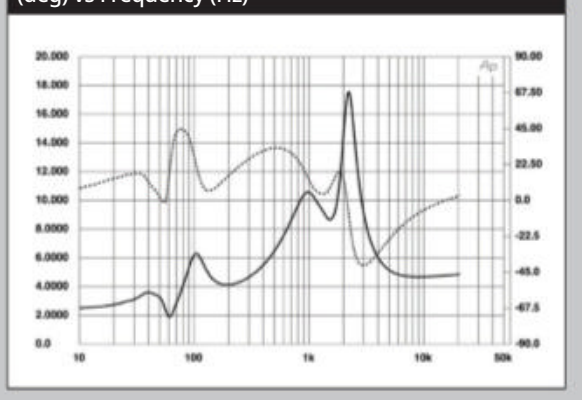

Fig.1 Estelon Aura, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

meter above the woofer, a small fraction of a wavelength (~4.5 meters) at the crossover, so there should be no issues there. Estelon emphasizes the care lavished on said crossover, which utilizes:

- Mundorf Supreme and Classic resistors
- Mundorf air-core coils (inductors) for midwoofers and tweeter
- Mundorf resin-impregnated coils for bass
- Kubala-Sosna internal wiring.

I connected the AURAs to a single NAD C 298 stereo amplifier, and later to a pair of monoblock Benchmark AHB2 amplifiers, via spade-terminated AudioQuest Granite cables; the AURA terminals also accept banana-plug terminations. My experiments with placement ended up with the speakers about 7.5' apart, 5' from the front wall, and about 3' from the sidewalls. They were toed in just a little, close to the factory-recommended 7°.

Hello, beautiful

From the first notes—well before I finalized position and toe-in—I found that the AURAs' beauty was not superficial. They sounded open and detailed and, once properly placed, well-balanced. I like to use solo piano recordings to start a review because the piano is a single acoustical instrument with wide ranges in frequency and dynamics. The challenge for any component, including the AURAs, is to convey all the notes, singly and in chords, with presence, tonal balance, and clarity while also making clear that the source of all that sound is a single large instrument in a real acoustic space.

The AURAs achieved all that with a pair of new recordings of Liszt's *Transcendental Etudes* performed by Francesco Piemon-

measurements, continued

The woofer's nearfield response (fig.3, red trace) peaks sharply between 50Hz and 70Hz and rolls off below that region with the ultimate 12dB/octave slope typical of a sealed-box alignment. The unit's upper-frequency rolloff is steep, and while the output above 125Hz is disturbed by some hash, this is low in level and any audible consequences will be reduced by the fact that the woofer fires down toward the floor.

The two midrange units behaved identically. Their summed nearfield response (fig.3, blue trace) rolls off below 100Hz with a sealed-box 12dB/octave slope and crosses over to the woofer close to the specified 77Hz. The black trace below 300Hz in fig.3 shows the complex sum of the midrange and woofer outputs. The small peak in the upper bass will be due to the nearfield measurement technique, which assumes that the drive units are placed on a true infinite baffle, ie, one which extends to infinity in both vertical and horizontal planes. However, the woofer's output does appear to be underdamped.

The black trace above 300Hz in fig.3 shows the Estelon's farfield output averaged across a 30° horizontal window centered on the tweeter axis. Other than some small peaks at the top of the midrange and between 7kHz and 10kHz and a slight lack of top-octave energy, the balance is relatively even. The Aura's horizontal dispersion, plotted 45° to each side of the tweeter axis (fig.4), is superbly well-controlled up to 17kHz, with the tweeter's output rolling off to the speaker's sides

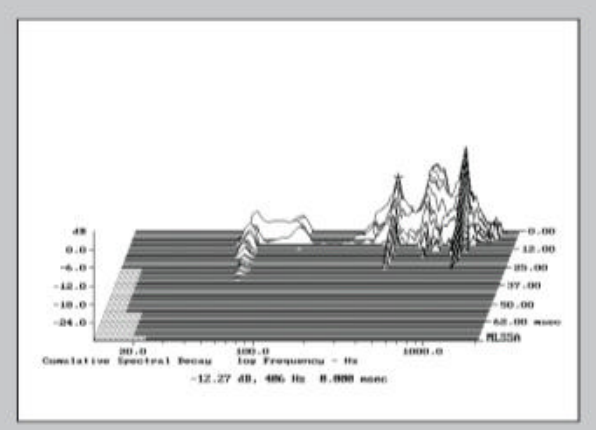

Fig.2 Estelon Aura, cumulative spectral-decay plot calculated from output of accelerometer fastened to the center of the side panel level with the lower midrange unit (measurement bandwidth, 2kHz).

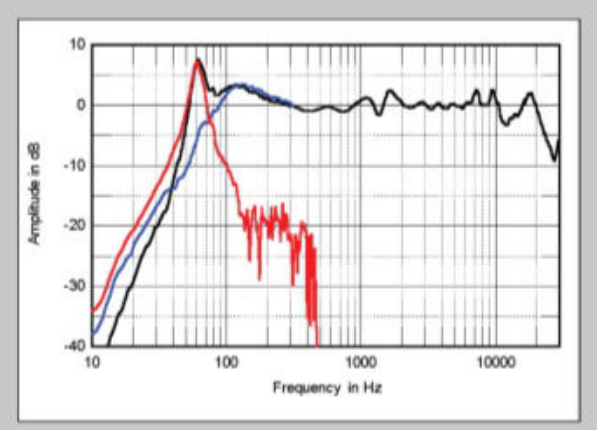

Fig.3 Estelon Aura, anechoic response on tweeter axis at 1m, averaged across 30° horizontal window and corrected for microphone response, with the nearfield midrange (blue) and woofer (red) responses and their complex sum respectively plotted below 300Hz, 500Hz, and 300Hz.

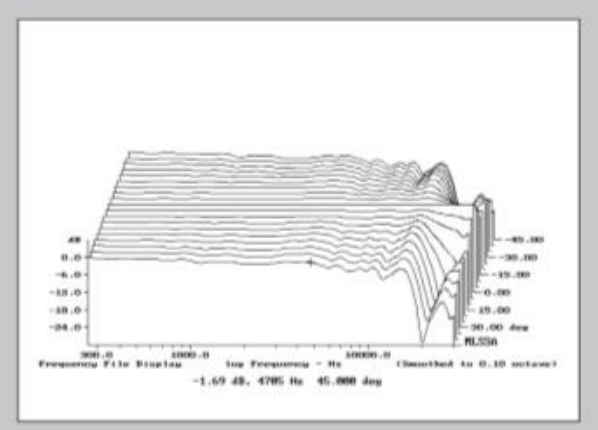

Fig.4 Estelon Aura, lateral response family at 1m, normalized to response on tweeter axis, from back to front: differences in response 45°–5° off axis, reference response, differences in response 5°–45° off axis.

tesi (Pentatone 5187052) and by Haochen Zhang (BIS-2681). Both play Steinways, and both recordings were auditioned via 24/96 FLAC files downloaded from the labels' websites. The instruments and their aural environments are remarkably similar to each other, but I detect a bit more focus in the BIS recording. And, although Zhang was recorded in a film/recording studio in Munich and Piemontesi in a small, modern concert hall in Lugano, neither recording offered much information about the acoustics of the recording sites. The contrast is in the playing. Zhang clearly relishes articulating individual notes, which he does with almost superhuman precision. Piemontesi leans toward a more legato expression, although the Estelons still let me hear each of the notes when I attended to them. Zhang's delineations were thrilling in the "big" pieces, such as No.4, "Mazeppa," and No.8, "Wilde Jagd," but also surprisingly touching in the more delicate No.7, "Vision"; he kept me hanging on every note, with bated breath. Strangely, Piemontesi's more fluid playing achieved more momentum in the big pieces and provided a much-appreciated grace in the delicate pieces. I listened to both performances several times via the AURAs. The experience was informative, enjoyable, and totally nonfatiguing.

I recently came upon a recording of chamber wind pieces by György Ligeti—a new release from Harmonia Mundi (CD, HMM905370) recorded in 2016 and remastered and reissued only this year. The earlier issue (Musicales Actes Sud ASM 26) was criticized for its sound quality, but Harmonia Mundi's 2023 release, which I downloaded in 24/96 FLAC, is spectacular. Via the AURAs, the instruments in the opening *Six Bagatelles for Wind Quintet* popped like a poster-painted posy, each clearly delineated, richly colored, and arrayed on a soundstage that extends laterally beyond the speakers. The closest wind instruments sounded as close as the speakers, the ensemble extending to a few feet behind, and there was a strong illusion of performers in my room. Quite thrilling,

measurements, continued

above that frequency. In the vertical plane (fig.5), the balance is maintained 5° below the tweeter axis, which is useful considering that the tweeter is a high 40" from the floor.

Turning to the time domain, the Aura's step response on the tweeter axis (fig.6) indicates that the tweeter and midrange units are all connected in positive acoustic polarity. The tweeter's output arrives first at the microphone, and the decay of its step smoothly blends with the start of the midrange units' step, which implies an optimal crossover implementation.

Because of its narrow low-frequency passband, the woofer's step is not visible in this graph. However, a nearfield step-response measurement (not shown) indicated that the driver is connected in inverted acoustic polarity, the step overlaid with ringing at the unit's tuning frequency. At higher frequencies, while the Estelon's cumulative spectral-decay (waterfall) plot (fig.7) features a clean initial decay across the audioband, some low-level delayed energy is present at the frequencies of the small peaks in the farfield response. (As always, ignore the apparent low-level ridge of delayed energy just below 16kHz, which is due to interference from the MLSSA host PC's video circuitry.)

In most respects, the Estelon Aura measured well, with a generally even frequency response, superbly controlled horizontal dispersion, time-coherent output, an initially clean waterfall plot, and a well-behaved enclosure. However, that very demanding impedance coupled with average sensitivity means that amplifier matching will be critical in getting the best from this loudspeaker, as Kal found in his audition.**—John Atkinson**

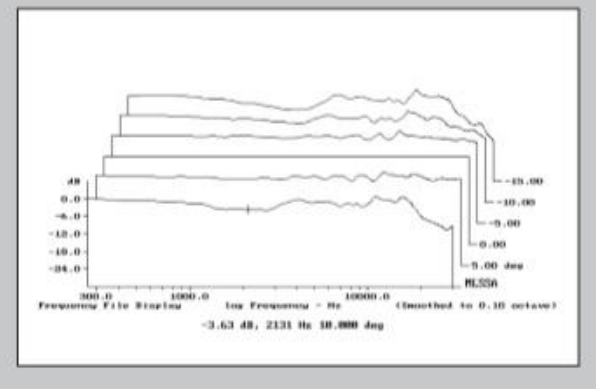

Fig.5 Estelon Aura, vertical response family at 1m, normalized to response on tweeter axis, from back to front: differences in response 15°–5° above axis, reference response, differences in response 5°–10° below axis.

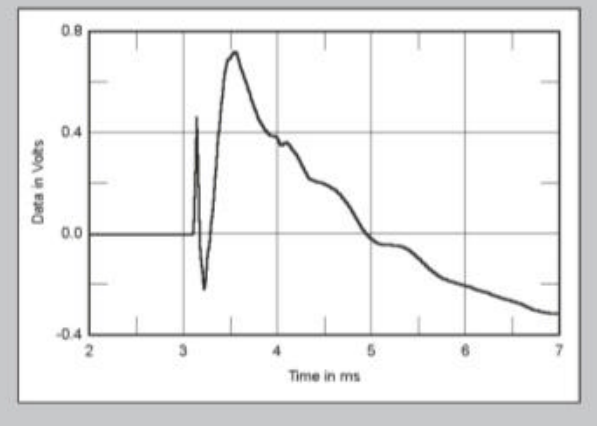

Fig.6 Estelon Aura, step response on tweeter axis at 1m (5ms time window, 30kHz bandwidth).

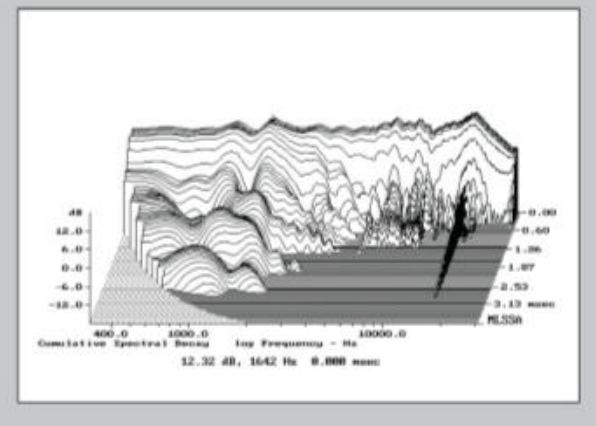

Fig.7 Estelon Aura, cumulative spectral-decay plot on tweeter axis at 1m (0.15ms risetime).

of course, but I missed any sense of the recording-site acoustics.

Fortuitously, the major work on this recording, Ligeti's Chamber Concerto, with François-Xavier Roth conducting Les Siècles, a larger ensemble, was recorded in a larger space, which endows the ensemble's sound with a richer ambience.[2] This was appreciated, especially when the AURAs' low-frequency performance delivered tight and detailed bass. In the motoric third movement, the pacing and percussion simulate synthetic music; it is reproduced here with surgical precision. The fourth movement is mellow and flowing save for one manic outburst; I was engrossed throughout by the music as the AURAs conjured a vivid illusion of a live performance.

Hankering for a recording with a greater sense of space and place, I moved to another recording by Les Siècles, one that has become a favorite of mine, Fauré's *Requiem* Op.48, which adds the vocal group Ensemble Aedes to the mix, both ensembles conducted by Mathieu Romano (24/96 FLAC, Aparté AP201). This piece was recorded in Abbaye de Lessay, in Manche, which offers a warm acoustic without loss of detail. From the first, defining pedal, everything was sweet and clear, and the AURAs delivered the voices and instruments distinct from the enveloping ambience. However, I heard less of the bass line than I have in the past from this recording.

Is it all about the bass?

To follow up on that point, I listened to some recordings that feature oktavists, singers whose range extends below that of a basso profundo, "down to contra B flat and lower in a choral setting."[3] Among those in my library, the contribution of the oktavists is clearest on Rachmaninoff's *All-Night Vigil* (aka Vespers), as performed by Gloriæ De Cantores joined by members of the St. Romanos Cappella, the Patriarch Tikhon Choir, and the Washington Master Chorale, all under Peter Jermihov (SACD, Gloriae Dei Cantores, GDCD 063, also available as a half-speed–mastered 45rpm, 2-LP set). This performance incorporates seven oktavists among 22 bassos. The AURAs did a grand job with this landmark performance, depicting the large chorus with subtle, wide dynamics in a wide, tall, deep soundstage. The oktavists contributed greatly to the richness of the chorus, but they can best be heard in Part 5, "Nunc Dimittus," listed as "Now Lettest Thou." As this part is ending, the music descends in pitch until only the oktavists are left to sing the final notes. The AURAs let me hear and appreciate the oktavists' contributions and to contrast this with the many recordings of the Vespers that employ only "regular" bassos. Those deep, otherworldly tones were stunning.

Still, I'd have liked a bit more from the lowest notes—which by the way go down around 58Hz. Via the AURAs, a normal low voice, such as Hans Theessink's in "Late Last Night" from Burmester's *Vorführungs - CD II* (Burmester Art for the Ear, no catalog number), displayed the expected gruff tonality in full. The AURAs did justice to the accompanying trombone and tuba. The percussion had kick. But if I pushed the AURAs with "The Flight of the Cosmic Hippo" (Bela Fleck, Warner Bros. 9 26562-2, CD) or with my favorite recording of Mendelssohn's first organ sonata with Thomas Murray (CD, Raven 390), I heard everything there was down to the lows in the second verse of "Hippo" and all the pedal tones in the last movement of the Mendelssohn, but I didn't *feel* the bass, and there was much less bass energy in the room than I am accustomed to. Although the AURAs have an extended low frequency response as would be expected from their size and use of a 10" woofer, their bass rolloff sounds like it begins rather high up—but hang on just a minute.

I took a detour from stereo and briefly ran the AURAs as L/R in a 4.1 mixdown of the recent release *The Trondheim Concertos* (2L 2L-172-SABD, SACD+Blu-ray), a selection of baroque concerti associated with the city of Trondheim and a good retort to anyone who thinks baroque music is lightweight. The mid- and lower bass was completely satisfying, suggesting that anyone who finds that the AURAs lack something at the bottom end can get satisfaction by adding a subwoofer. The rest of the spectrum was, as I have come to expect from the AURAs, clean, open, and dynamic.

Resolution

I chose this moment to switch to the Benchmark AHB2 monoblocks to see if what I was hearing was related to amp/speaker matching. It was. I have swapped power amplifiers many times while reviewing speakers. I have even done so with these particular amplifiers, the NAD and Benchmarks, and struggled to describe the subtle differences I heard. But this time it was easy. Using the Benchmarks with the AURAs, the bass was improved so much that the light bass I heard previously was no longer an issue. The above caveats no longer apply.

The gloves are off

I usually save the "big" music for the end of a review, and I am glad I did so with the AURAs, now powered by the monoblock Benchmark AHB2s. The opening drum salvo of Rameau's "Zaïs – Ouverture" from *Une Symphonie Imaginaire*, by Marc Minkowski and Les Musiciens du Louvre (SACD, DGG Archiv 00289 477 5578), was proof positive that all was well. When the whacks got louder to set the tempo, the strings and winds exploded with the joyful melody, filling a wide and deep soundstage.

The ability of the AURAs to project this soundstage with great clarity was confirmed with "Stimela (The Coal Train)," from the al-

ASSOCIATED EQUIPMENT

Digital sources Oppo Digital UDP-103 universal disc player, Custom Intel/Win11 music server running JRiver Media Center v30 and Roon, Merging Technologies Hapi MKII, exaSound s88 Mark II, and Okto DAC8 Pro D/A processors. QNAP TVS-873 NAS.
Preamplifiers Coleman Audio 7.1SW for balanced DAC-to-amp switching.
Power amplifiers Benchmark AHB2, NAD C 298.
Loudspeakers KEF Blade 2 Meta, Revel Performa3 f206; two JL Audio e110 and 1 SVS SB-3000 subwoofers.
Cables Digital cables: AudioQuest Coffee (USB). Analog interconnects: Benchmark Studio&Stage XLR-XLR, Kubala-Sosna Anticipation (RCA), Cardas Cross (subwoofers). Speaker cables: AudioQuest Granite, Benchmark Studio&Stage, Blue Jeans Canare 4S11. AC cables SignalCable MagicPower 20A.
Accessories AudioQuest Niagara 5000, Brick-Wall BrickWall 8RAUD, and CyberPower 850PFCLCD UPS power conditioners, Teddy Pardo 12V PS (for exaSound s88), HDPlex 300W Linear Power Supply and AC filter (for server).
Listening room 24' L × 14' W × 8' H, furnished with custom-built 9" × 12" × 40" and 2" × 12" × 48" absorbent panels in each front corner. Sidewalls lateral to L/R speakers have 2″ thick, 2′ wide floor-to-ceiling OC 705 panels. Front wall has large windows partly covered by insulated fabric drapes. Rear of room opens into 10′ × 7′ foyer and a 12′ × 8′ dining area.—**Kalman Rubinson**

2 The album notes identify both recording sites, the Méjan Chapel in Arles and the Cité de la musique in Soissons, but do not associate individual works with the sites. From the pictures I see on the internet and from what I hear, I suspect that the Concerto was recorded in Soissons and the two pieces for quintet in Arles.

3 See oktavism.com/post/2014/11/16/what-is-an-oktavist.