SoundStage! ULTRA Sound to the Xtreme

Loudspeaker Review Written by Jeff Fritz

Estelon X Diamond Mk II Loudspeakers

To many audiophiles, this one included, luxury loudspeaker maker Estelon has largely been a mystery. What I knew about Estelon before this review—and I follow the upper end of the hi-fi market closely—was entirely superficial: They're based in Tallinn, Estonia, in northern Europe; before COVID-19, they displayed their wares at Munich's annual High End show; the shapely forms of their speakers are often described as elegant; and those speakers are not inexpensive.

In preparing for this review, I quickly learned a bit more: Estelon uses Accuton drivers in all but their least-expensive speakers; and they developed in-house the material from which they make their speaker cabinets.

Having lived with and studied Estelon speakers over the past several months, I've discovered a lot more than I've mentioned above. In my listening room now is a pair of Estelon's X Diamond Mk II speakers ($78,000/pair, all prices USD), and I very much want to tell you all about them. (See the details of their delivery on my SoundStage! Global blog, "The Estelon X Diamond Mk II Arrival Details.")

Description

The X Diamond Mk II, an update of the original X Diamond, incorporates all that Estelon has learned in their ten years of producing loudspeakers. The three-way, three-driver X Diamond Mk II is a large floorstander measuring 53.9"H x 17.7"W x 25.1"D and weighing 189.6 pounds. It's easier to look at the photos accompanying this review than for me to accurately describe this speaker's constantly varying shape, but I'll try. First, those overall size figures are misleading, for they indicate only the X Diamond Mk II's largest measurement in each dimension: This speaker is all curves, except for: 1) a narrow vertical section of the front face, which presents a flat surface only just wide enough for each driver to be affixed flush with the baffle; 2) the flat top, which angles down toward the front of the speaker; and 3) the bottom. The X Diamond is widest and deepest closest to the floor, to accommodate its 11″ woofer, then gracefully tapers inward to a high, narrow "waist" where the 1″ tweeter resides, and above that widens slightly to accommodate the 7″ midrange driver. Elegant is so clearly the most apt descriptor that I think every writer who's ever described an Estelon has used it—it'd be nice if I could come up with another wording. Until I do, I can say that the X Diamond Mk II is, in another word, beautiful—an example of inspired industrial design. In fact, it's the most beautiful speaker I've ever had in either of my listening rooms of the past 20 years. The X Diamond Mk II looks as if poured, so liquid are its curves. The X Diamond Mk II is audio sculpture at its finest.

But in the world of Estelon, form follows function—this speaker's shape was not chosen for visual appeal alone. Designer Alfred Vassilkov says that the shape of the X Diamond Mk II makes possible a proper wavelaunch for the drivers because it: 1) avoids the harmful effects of diffraction artifacts caused by sharp edges, lips, and protrusions; 2) helps to "create controlled directivity of the propagating soundwaves"; and 3) the "narrowing of the area where high-frequency [sound] emanates helps achieve 0 degrees phase [shift] at the listening position." Such functional design extends to the cabinet's interior, where curved surfaces result in nonparallel walls that, per Estelon, practically eliminate standing waves and their harmful effects. The interior is also braced at strategic points, to reduce resonances.

The Estelon X Diamond Mk II's three drivers have very good specifications indeed. The tweeter is a 1" inverted diamond dome made by Accuton and claimed by Estelon to extend the speaker's high-frequency response all the way out to 60kHz. The tweeter is crossed over at 2000Hz to the 7" midrange-woofer above it. This Accuton driver has a ceramic-membrane cone, and it in turn hands off, at a low 80Hz, to that 11" woofer at the bottom, which has a 2.1" voice coil and a ceramic cone, this time a sandwich. Vassilkov has placed the woofer near the floor for acoustical reasons: that way, the bass frequencies can couple more efficiently to the floor, to provide more linear bass response, he says. Each driver is covered with a nonremovable metal grille.

The crossover slopes are either second-order (midrange to tweeter) or third-order (woofer to midrange). The crossover itself, housed in a sealed chamber inside the X Diamond Mk II, comprises "transformer-core coils, OFC (oxygen-free copper) foil coils, [and] Mundorf Silver-Gold-Oil capacitors." The crossover's component-to-component connections are hand-soldered, and the entire crossover assembly is tethered to the speaker's single set of Furutech binding posts with pure-copper Kubala-Sosna wire.

Those posts are at the bottom rear of the X Diamond Mk II, in a recess that also includes a mounting plate that displays the serial number, the nominal impedance, and the model and company names. The posts were easy to access for attaching speaker cables, and required only hand tightening—I didn't need a wrench. Just above the binding posts is a 4"-wide flared port—peering in, I could see that its tube is bisected by a plastic fin, I guess to minimize turbulence as air exits the cabinet. The finish is amazing—I saw no flaws anywhere, and so deep was its luster that I felt I could almost reach inside the speaker through its skin. After fabrication, the marble-based cabinet is allowed to cure for a period of time before being sanded and polished, after which multiple layers of lacquer are applied, followed by more sanding and polishing. The result is as good as anything I've seen—and I've seen the best of the best gloss finishes, such as those from Tidal and Rockport Technologies. Estelon's three standard finishes are Black Lava Liquid Gloss, Black Lava Matte, and White Gloss; six other finishes can be ordered for various upcharges. For the Silver Pure Alu Liquid Gloss of my review samples, add another $3900/pair.

If you've heard the original X Diamond, the Mk II includes some claimed improvements: a revised crossover, better Furutech binding posts, revisions to the Accuton tweeter, and some cosmetic updates. Estelon specifies the X Diamond Mk II as having a wide frequency range of 22Hz-60kHz, a nominal impedance of 6 ohms (minimum 3.5 ohms at 50Hz), a sensitivity of 88dB/2.83V, and maximum power handling of 200W (20W minimum).

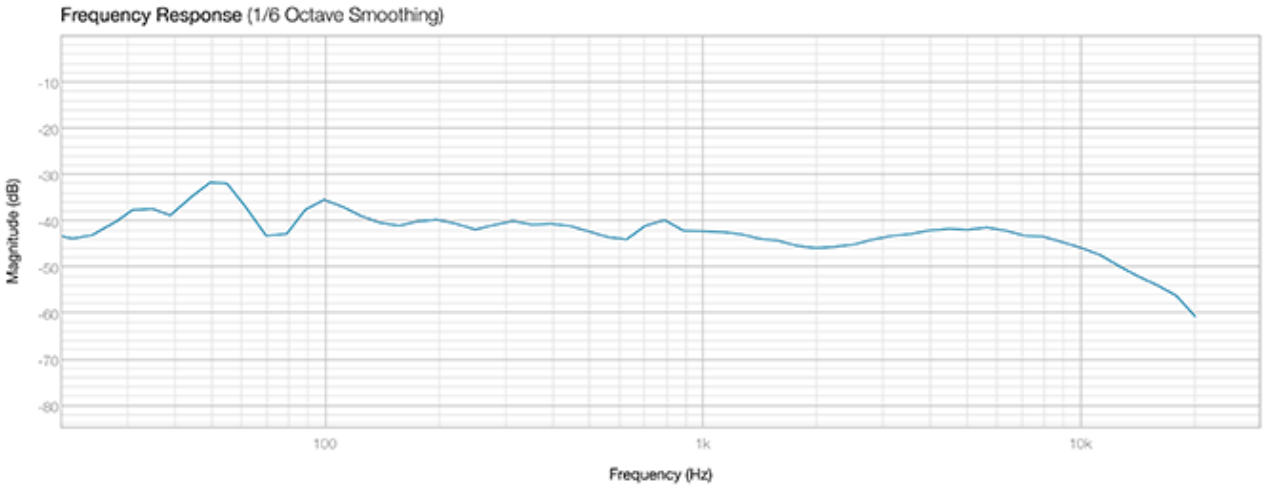
Connections

The Estelon X Diamond Mk IIs were driven by either my Boulder Amplifiers 2060 power amp or, later in my listening, MSB Technology's S202, via Shunyata Research Alpha SP speaker cables fitted with spades at both ends. My DAC, with integral volume control, was MSB's Discrete, though I also

substituted their Premier DAC toward the end of my listening. Connections between DACs and amps were made with Shunyata Delta IC balanced interconnects. My source component, an Apple MacBook Air laptop running Roon and Audirvana and using the Qobuz streaming service, was connected to the DACs with a Shunyata Alpha USB link. Shunyata Venom NR-V10 power cords were used in various places as well.

Setup

Setup went smoothly, free of drama. Estelon recommends starting with the speakers at least 3' 6" from the nearest reflection points, a minimum of 1' 8" from the front wall, 8' 2" to 13' apart, and with a toe-in of 7°. Although in my room I couldn't fulfill all of these recommendations, they gave me a good guidance.



With the X Diamond Mk IIs in their starting positions, I began my usual set of acoustic measurements: Placing a Behringer ECM8000 condenser microphone at my seated ear height at nine positions along the arc described by a 20" radius at and around the listening position, taking a reading at each, and averaging the results. I used an MXL Mic Mate XLR-to-USB adapter to connect the ECM8000 to an Apple MacBook Pro laptop running the FuzzMeasure acoustic-measurement software. The frequency-response graph (20Hz-40kHz, 1/6-octave smoothing) shows a generally neutral response from 100Hz to 10kHz. The peak in the bass at 50Hz is a room mode, and the gradual rolloff above 10kHz is due to absorption by my room treatments, furnishings, and carpet. The bass extension was -4dB at 20Hz—plenty deep enough for almost any music.

The X Diamond MK IIs finally found their song—the best combination of measured performance and sound quality—when their rear panels were 3' from the front wall, and the center of each tweeter was 2' 4.5" from the nearer sidewall. I couldn't move them farther from the sidewalls because that would have brought the speakers too close together. I settled on a tweeter-to-tweeter distance of 9' and 12° of toe-in, the latter yielding slightly more focused image placement than the 7° recommended by Estelon. I sat 11' from the speakers.

Sound

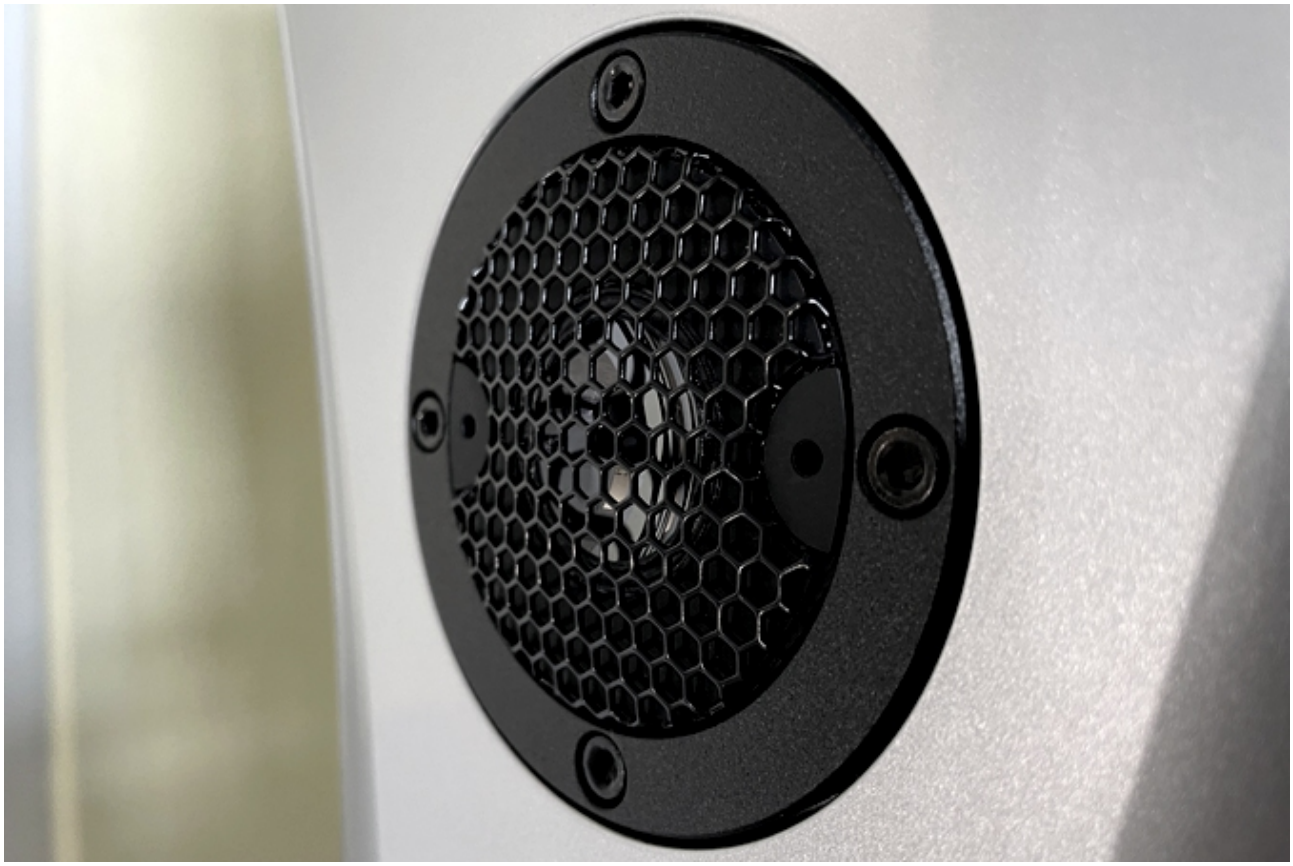
I began my serious listening evaluations with “Better Together,” from Jack Johnson’s In Between Dreams (24-bit/96kHz FLAC, Brushfire/Qobuz). The sound of Merlo Podlewski’s bass guitar was tuneful and tight, the Estelons allowing the low frequencies to flow freely out into the room without constriction—the bass line was not only easy to follow, but had enough weight that I perceived physical presence in my room. The 11" woofers were agile and quick, but also produced deep, taut bass—an ideal combination that yielded satisfying overall low-frequency reproduction.

I next listened to a track I’ve often turned to through the years for its substantial low-bass reach, a recording that will test the bass depth and linearity of any audio system: “Norbu,” from Bruno Coulais’s music for the film Himalaya (16/44.1 AIFF, Virgin/Qobuz). I first cued it up at a sound-pressure level of 88dB, as measured at my listening seat. Through the X Diamond Mk IIs the bass was linear and powerful, almost fully pressurizing my room with lows as the huge drum thwacks rolled from the front of my room to the rear. And as those drumbeats faded from hearing, the decays went on and on. Very satisfying.Could the Estelons do more? When I raised the output level another 5dB, to 93dB, “Norbu” just sounded and felt a lot bigger. The bass now fully pressurized the room, with even greater authority, and the decays lasted even longer and were more easily heard as they faded out of existence behind me. But the Estelons were now working harder to produce lows as they reached the limits of how much air they could move. The substantial movement of bass soundwaves was further evident because the amount of air moving through the ports was significant in volume—almost with the force of a hair dryer on low speed.

Wanting to hear just how punchy the X Diamond Mk IIs' midbass could be, I cued up "Say Goodbye," from the Dave Mathews Band's Crash (16/44.1 FLAC, RCA/Qobuz). I listened to the opening drum solo at peaks of over 95dB—loud, if not quite the bass stress test presented by "Norbu." What I heard was immensely satisfying. The Estelons could launch impressive blasts of air while sounding clean and effortless. This great drum track is one of my favorite tests of a speaker's bass agility and physicality, and the X Diamonds passed it. I loved having speakers with big woofers—it was great fun, and made many tracks immensely enjoyable.

Next up was a single, the title track of Lana Del Rey's Chemtrails Over the Country Club (24/48 FLAC, Interscope/Polydor/Qobuz). The Estelons reproduced the always atmospheric Del Rey by portraying her voice as a three-dimensional presence on a palpably tangible soundstage. Most impressive was the almost visible image of Del Rey as she sang dead center on the soundstage. That stage was magnificently deep, extending way past the plane described by the speakers' rear panels, and beyond the front wall of my room. I listened to this track several times, marveling at each hearing, and was always impressed by the size of the soundstage—beyond wall to wall, and many feet deep—and the precisely limned and positioned aural images of voices and instruments on it. Women's and men's voices all sounded neutral and clear—in terms of tonal accuracy, it was all I could ask for.

Then something occurred to me. Although I'd listened to the tracks mentioned above, and many more, at many different volume levels, particularly the bass-heavy tracks, except for the slightest bit below 30Hz in my loudest playing of "Norbu," I'd heard no change in sound character, regardless of SPL. This was true in the lows, the highs, and everywhere between. The highs never sounded hot or bright, the bass never loose, the midrange never hard. This can no doubt be attributed partly to Estelon's very good drivers, an inert cabinet that doesn't distort those drivers' outputs when the music gets raucous, and a hundred other things—after all, the sound of any speaker is the sum of all its parts. All I know is that I could count on the X Diamond Mk II to keep its extremely neutral character intact when I pushed it hard. Of course, the Estelon has only three drivers—there are some limits. But with the music I played, I never wanted more output—and at more rambunctious listening levels of ~100dB, the Estelons never sounded as if I was coming even close to damaging them.



As predicted by their lovely frequency-response graph, the X Diamond Mk IIs produced an ideal tonal balance in my room. The highs didn't sound rolled off—in fact, they sounded brilliant when the recording

called for it. When I listened to "So Far Away," from Sly & Robbie's Red Hills Rd., with Dean Fraser and the Taxi Gang (24/48 FLAC, Taxi/Qobuz), Fraser's sax was smooth and sweet, never veering into bright or hard—to my ears, an ideal reproduction of his tenor sound. Some tweeters I've heard make this track, and others like it, unlistenable at higher volumes. The Estelons never offended with harsh sound, but they also won't be mistaken for speakers with soft-dome tweeters—their HF response was super-extended. Their reproduction of fine detail, and the "air" I heard around high notes, seemed almost implausible, given how easy they were to listen to.

Comparisons

Before the Estelons arrived, the two best loudspeakers I'd heard in my current listening room were the Vimberg Tondas ($39,500/pair) and the Rockport Technologies Avior IIs ($40,500/pair). Though very different in sound character, those two models were the high-water marks for this room in our new house, which we moved into in summer 2018. Now there's a higher mark. The X Diamond Mk IIs are almost twice the price of the Vimbergs and Rockports, and though I can't say the Estelons were better than the Rockports and Vimbergs in every audio parameter, they held several advantages over each.

In the highs, the Estelons sounded airier and silkier than either the Rockports or the Vimbergs. The Rockport Avior IIs had a tonally dense, detailed, open sound in the highs that was always satisfying and never caused listening fatigue. The Estelons never sounded fatiguing either, but their ever-so-slightly airier sound gave such instruments as cymbals just a hint more shimmer. And compared to the Vimbergs, the Estelons produced just a touch more delicacy in the uppermost frequencies. Those diamond tweeters are, um, absolute gems in terms of sound—I could easily hear the difference.

The X Diamond Mk IIs could also go deeper in the bass than the Rockports or Vimbergs, and with more authority, though this was apparent only in the few tracks I played that have musical content in the very lowest octave. Though I wouldn't feel the need to add a subwoofer to a pair of any of these three speakers, it was the Estelons that came closest to approximating the sound of a high-performance, perfectly integrated sub—those big woofers paid dividends. In short, the Estelons held advantages over the Vimbergs and Rockports at both extremes of the audioband. For me, this justifies the nearly $40,000 difference in price. In terms of their qualities of build, finish, and overall visual design, I hold Vimberg and Rockport speakers in the highest regard. I can now add Estelon to the very short list of the best practitioners of these aspects of loudspeaker manufacture. As with the models made by Vimberg and Rockport, I saw no flaw in the construction or finish of the X Diamond Mk IIs—and visually, the Estelons are the most beautiful speakers I've been in the company of. A very personal assessment, I know, but photos can't do this speaker justice.

Conclusion

The Estelon X Diamond Mk II is a fantastic loudspeaker in every regard. It excels at the frequency extremes, but its sound is also amazing everywhere in between. The big Estelons play low and authoritatively in the bass, and marry that to almost impossibly airy, silky highs and an entirely uncolored midband. And when that superb sound quality is considered in the context of the most beautiful enclosure I've ever had the pleasure of living with, you have a complete package.
Huh. Seems like I'm describing the ideal loudspeaker.

The X Diamond Mk II has established a new "best" for my current listening room, and thus gets my absolute highest recommendation. If you get the opportunity, see, hear, and touch a pair of them. You may find them as irresistible as I did.

Associated Equipment

– Speakers: Vimberg Tonda
– Amplifiers: Boulder Amplifiers 2060, MSB Technology S202
– DAC-preamplifiers: MSB Technology Discrete DAC and Premier DAC
– Source: Apple MacBook Air laptop computer running Audirvana, Roon, Qobuz
– Interconnects, speaker cables, power cords: Shunyata Research: Delta IC balanced interconnects, Alpha USB link, Alpha SP speaker cables, Venom NR-V10 power cords
– Power conditioner: Shunyata Research Hydra Alpha A12
– Rack: SGR Audio Model III Symphony