Sound Lab Ultimate 545 electrostatic loudspeakers Review

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By Constantine Soo

June 12, 2018

Dr. Roger West and Dr. Dale Ream founded sound Lab on July 1, 1978. Their founding belief was that electrostatic transduction is the optimum loudspeaker technology. Over the decades since, the company has continued to offer updates to older products. The Sound Lab Ultimate 545, the subject of this review, is the same speaker that Dagogo Senior Reviewer Doug Schroeder reviewed in January 2017, though at the time the product was called the U-4IA. Doug detailed the design and setup aspects of the speakers in his article, so I will focus on my take on the speaker's performance in this article.

The torchbearers in today's panel designs are Quad (UK), Magnepan, MartinLogan and Sound Lab. MartinLogan pursues the hybrid designs of coupling an active cone subwoofer system underneath an electrostatic panel on all but one of its products, namely the pure-panel CLX Art. Quad, Magnepan and Sound Lab offer full-range panels with no cone subwoofer integration. The Sound Lab Ultimate 545, the subject of this review, is one such speaker system.

Since Doug's review, the U-4IA was renamed the U-545 wherein the 545 designation refers to a 5 foot t high panel with a 45-degree dispersion angle. For normal living rooms with 8 foot ceilings, the Ultimate series (U-545, U-645, U745 andU-845) is offered as the highest-performing product group in the Sound Lab lineup, featuring steel frames as opposed to the wooden frames in the rest of the company's panels. The largest version of the Ultimate series is the U-945, which is offered for those who have a ceiling that can accommodate 9-foottall speakers. According to the company, the steel frames used on all models of the Ultimate lineup provide higher reactive mass and enhanced rigidity, thus supposedly allowing a more efficient conversion of electrical energy to acoustic energy of the panel.

But the U-745 and U-545 are not to be mistaken for the ultimate solution for all rooms, especially larger ones. For my approximately 3,700 cubic foot listening room that measures 14 feet wide and 30 feet long with a 9 foot ceiling, the U-545 was not what Roger had in mind originally. The entire *propter quod* for the Sound Lab method is the line source, which produces not just a primarily forward sonic wave front, as in a dynamic tweeter or midrange, but a 360-degree pattern from a floor-to-ceiling dipole line around which the sound pressure remains uniform, true to the radiating pattern of a live object. Because of this, Roger wanted to send me the Majestic 945 instead, which is 2 inches short of being 9 feet tall, but agreed to let me review the U-545 instead because of my unrelenting insistence. His remarks:

"*My calculations show that in order to achieve proper acoustic balance with the [Ultimate 545's] the listening room should not have a volume greater than about 2400 cubic feet. In contrast, your room has a volume of nearly 3800 cu. ft. However, the speakers are mounted on the narrow aspect of the room and thus low-frequency energy travels on a "corridor" past the listening position, somewhat like a wave-guide, which could increase the energy density of bass energy and somewhat offset the maximum room volume requirement. This is new territory for me and I'll be most interested in the results.*

"Normally, based on the volume and ceiling height calculations of your room, I would have recommended our Majestic 945's. Just day before yesterday I received a note from our Japanese distributor that a customer of his who recently received a pair of the Maj-945's, and whose listening room volume is similar to yours. Some of the customer's remarks are attached as provided by my distributor. The Maj-545 and the Maj-945 are identical in every way with the exception of radiating area – the low-frequency energy density in a given room is a direct function of the radiating area. Normally, the smallest speaker that I would recommend for your room volume would be the Maj-745. The Maj-845 and the Maj-945 would do even better. I apologize for my "thinking out loud", it's just that I'm a bit concerned about your room having a much larger volume than I would normally recommend. However, let's see if the shape of your room helps to compensate for this.

"The Maj-545's can handle upwards of 600 linear watts in case you need to push them a bit to fill your space. It is my tendency to be overly conservative for which I apologize. Please keep me posted."

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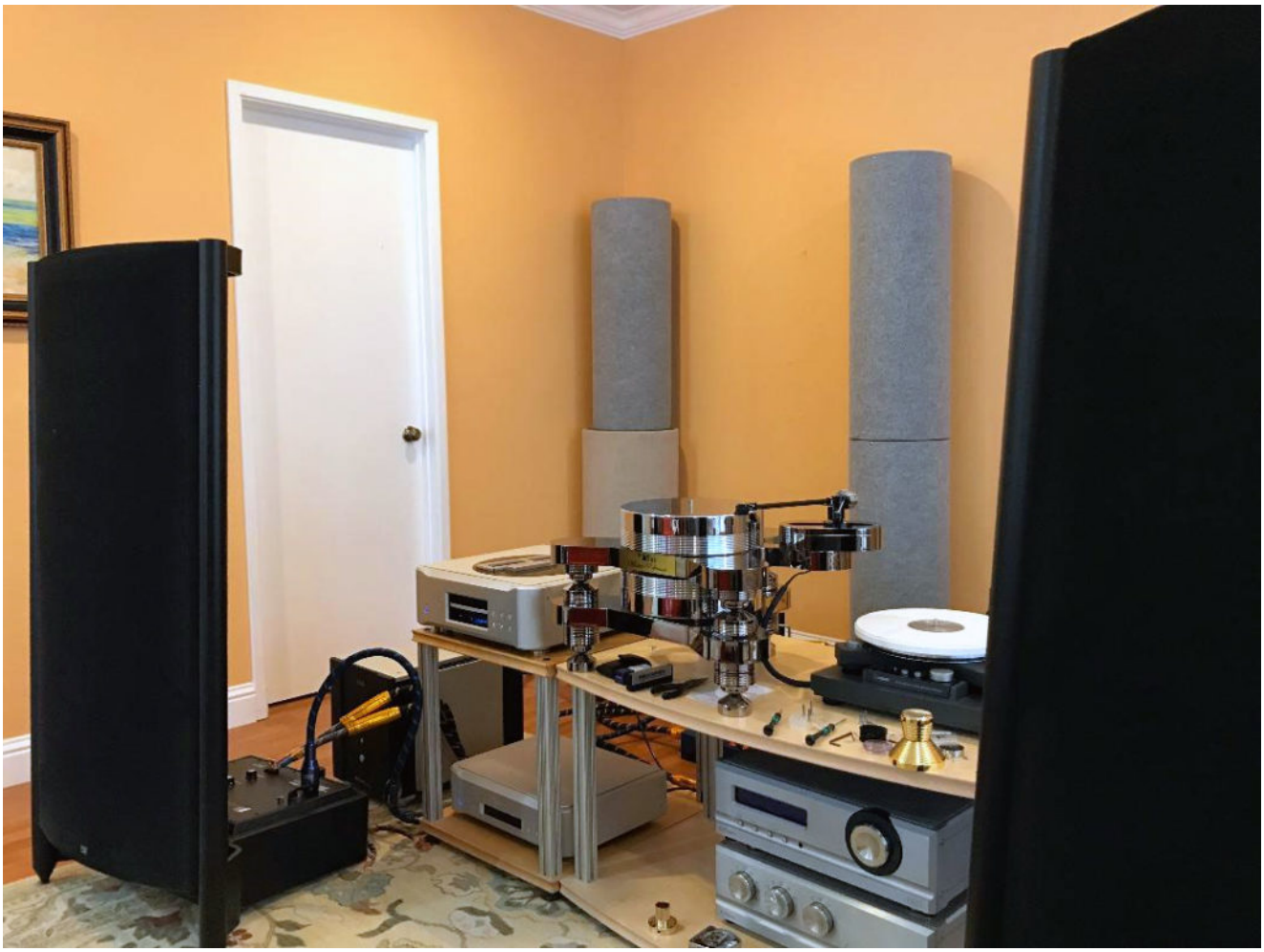

Sources for this review included the TriangleArt Master Reference turntable system with the Digital Controller, the Osiris II tonearm, the Apollo moving-coil cartridge, and then the Spiral Groove Revolution turntable system with the Centroid tonearm and the Fuuga cartridge, the Bricasti M1 Limited Edition dual-mono USB DAC, the 47 Laboratory 4741 Izumi CD player/transport, the Esoteric K-01 SACD player/USB DAC and the G-01

Rubidium Clock, the Pass Laboratories Xs Phono for analog playback, the Xs Preamp and the XA-200.8 Class A monoblock amplifiers. Cabling was via the MIT Cables Oracle series, with the Audio Reference Technology Super SE and Analyst power cables providing power to and from two of A.R.T.'s own Distributors. Additionally, the Sound Lab panels required AC charging, and the A.R.T. power cables made non-negotiable improvements over others. The quintessential ASC TubeTraps mitigated room acoustics issues.

At 86dB efficiency with an 8-ohm impedance, the U-545 needed more wattage than current in amplification, so a high-output Class AB would be more appropriate generally. But the XA200.8 is Pass Labs' most powerful Class A monoblocks in its 'High Current' series, occupying only two chassis and second-in-line to the company's four-chassis, $85k Class A Xs 300, therefore provided the necessary wattages in high-current drive and propelled the panels to enormous scale and performance.

The Sound Lab's rear module features a BRILLIANCE knob from 7 o'clock to 5 o'clock, a MIDRANGE knob of +3, 0, -3 and -6, and a BASS knob of +3, 0, -3, -6. The bottom-end of the panels are of such prowess at the "0" setting that I just left it there for the initial months. Same for the midrange. The BRILLIANCE setting was left at the 12 o'clock position for the first month, and I found that to be eminently musical and rendered the panels vanishing.

Tonality and separation were supreme with the Sound Lab. At those settings, the Sound Lab Ultimate 545 portrayed the Steinway & Sons piano in Evgeny Kissin's RCA Victor recording of the Chopin Scherzo #4 in E with complete ease, sounding the most ethereal in transients and spectacular in tone of all speakers I've experienced in my listening room. The panels' realization of the tonal decay of instruments and their delivery of pristine tonality and expeditious, punctual transients were the most startling and impressive among speakers I have had here. I attribute these qualities to a proficient design and the highest implementation of the day's transducer technologies.

The full-range electrostat's reiteration of the jazz piano in the First Impression Music K2 HD remastering of jazz vocalist Jacintha's "Autumn Leaves" made jazz music the most palatable to my ears. It's recreation of the horn section satiated my craving for the electrostatic trait of an expansive tonal coherence, and presented a sound that resembled the irrepressible speed of the Tannoy Westminster Royal SE's horn-coupled tweeter/midrange.

The U-545's prowess in detail resolution on top of instrument separation was of such rarefied order I've heard in speakers, that the panel's 3,125 square inches of planar radiation area projected instruments loud and soft into the listening space meticulously and majestically, in a manner few prestigious multi-driver dynamic speaker systems I've heard could approach.

The steel frame of the U-545 supposedly improved the performance of the panel over its 545 Majestic Series and Audiophile Series brethren in their furniture-grade wood frames. Not having the Majestic model also in the house, I couldn't make direct comparisons, but concise and definitive playbacks of music rich in bottom-end information, such as the JVC XRCD *Ondekoza*, lent credence to the enhanced rigidity of the steel frame.

These new electrostatics surpassed the Magnepan 3.7i in sonic transparency and piled on unmatched dynamic transients that reproduce instruments with a full-bodied, cunning realism, on top of an earth shattering bottom-end.

The company's latest innovation, the Bass Focus Technology, adds 6 dB of bass energy to the U-545 over previous generation panels. At the "0" setting of the BASS knob, I found the bottom-end meticulous and well integrated with the rest of the panel, and resisted the temptation of subjecting my fine tuned sensibility to the intoxicating effects of powerful electrostatic bass. The state of mind of audiophiles that befalls single-mindedly to the mind-bending effects of electrostatic bass is well documented. I strive to not lose my objectivity. And I caved.

In the final month of the review, I turned both the BASS and MIDRANGE from the "0" setting to "+3".

That solid bottom-end performance was epical in projecting the three taiko drums of Ondekoza into my listening space. In the midst of recreating the most compression-free sound that went through it, with this track the completeness and coherency of top-to-bottom spectral extension was simply spectacular. In playing this purely acoustic instrumental piece, the Sound Lab created bottom-end and resolution finesse that breathed vitality into what is a masterpiece.

Tom Bourret, a Sound Lab dealer in the San Francisco Bay Area who owns the $45,000 U-1PX, came over to listen and was awestruck. He is planning to upgrade to one of the new Bass Focus models.

The curved panel technology of Sound Lab offers placement flexibility. I initially positioned the panels 5 feet from the wall behind them, while sitting 12 feet away. At that distance, the sound field created was less focused than I prefer but a slight toe-in snapped the imaging into sharp focus. As months went by, I moved the panels a further 3 feet away from the front wall, prompting the need for a slight increase in toe-in angle. There are instances where a straight firing, no toe-in placement may be warranted. Pass Labs engineer Jam Somasundrum invited me to listen to his X600.8-driven Sound Lab Majestic 2, an older

model that is 6 feet tall. In a slightly narrower room than mine, he positioned his gorgeous panels to fire straight ahead, fronting powerful testament to the aptness of even the largest Sound Lab in less spacious spaces.

I had hoped for the dawn of a technology that would lead to the development of midget speakers capable of large scale orchestral reproduction without sacrificing the ability to reenact the gentleness and lightness in Vladimir Horowitz' playful Moscow live concert recording. But if the sonically and visually tantalizing Sound Lab curved panels are what we have to contend with, I don't see a problem. For the mere fact that the Sound Lab Ultimate 545 was able to produce tonality of such freshness and clarity that it had cemented its position as the ultimate transducer; never-minding the occasional electrostatic crackling of the panel, a happenstance resulting from a slightly greedy increase of the panel bias, which only added to an already hopelessly fun ownership experience.

The electrostatic technology as implemented to the level and scale of Roger West's Sound Lab is sophisticated and costly, difficult if not impossible to be copied by others. The performance of these electrostatics is off the charts in my experience. Owning a pair of Sound Lab is not a mere appreciation of the technology and its peerless capabilities, but also shows how serious you are in pursuit of the most realistic music reproduction.

Requiring considerable amplification and yet sonically delicate, pushing dynamic capabilities beyond cone speaker technologies and extending spectral extremes without use of cone woofers, the Ultimate 545 is a definitive expression of one man in his quest for the most natural sounding speaker technology.

Now, I want the Majestic 945. Let'em fill up my room and take my music to the next level.

Copy editor: Dan Rubin

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