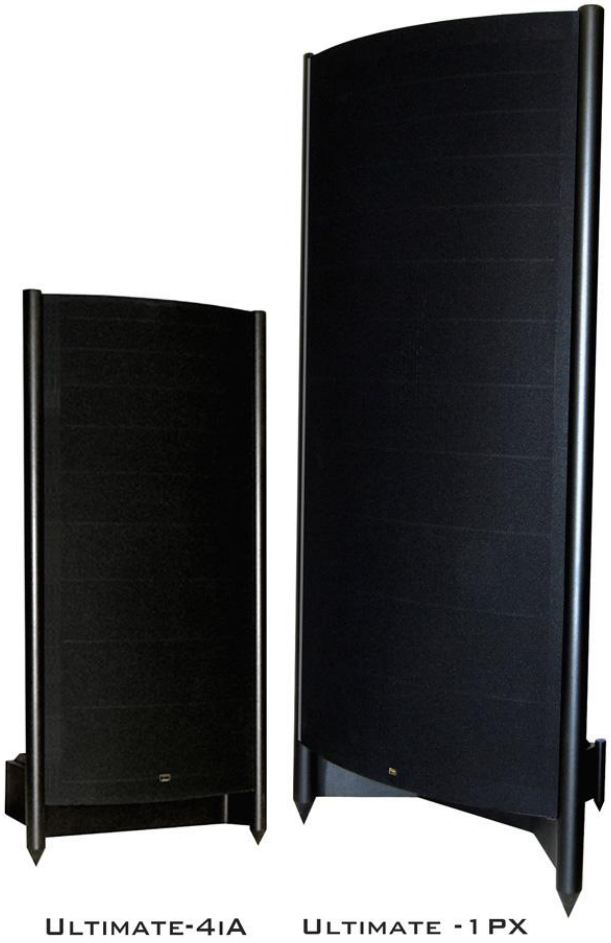
Sound Lab Ultimate U-4iA electrostatic speaker Review

By: Doug Schroeder | January 2017



Certain products in the audiophile universe seem unobtainable, so physically large and/or costly that only advantaged audiophiles will ever own them. As might be expected, many are noteworthy performers. Upper end Sound Lab full range electrostatic speakers have a reputation as being huge and expensive, but able to create a lasting listening impression. Once you have heard a big Sound Lab you never forget it!

In the past you needed an oversized room and several tens of thousands of dollars at hand to get into the big Sound Lab game. Now that the flagship speaker from the company has shrunk from the Majestic 945PX at a neck-straining *9 feet high* down to the U-1PX at a mere seven feet, more customers have been able to join the Sound Lab family. With the U-1PX you merely need a large room and $45k. But now, at last, a Sound Lab "for the masses" has arrived, the Ultimate U4iA, or "Euphoria." This is a wisp of a Sound Lab at 56" x 25" x 25" (Those measurements include the attached power supply and crossover at the base; the electrostatic panels are 5.5" thick), with a more manageable MSRP of $21,300! Hope should be rising, as for the first time *you* might be able to own a top pedigree Sound Lab speaker.

Mixed feelings over mega-speakers

I will never forget the first time I spied a speaker so large it both inspired and depressed me. It was about 1988 and I was a post-graduate student when I encountered the tri-fold Magnepan Tympani at a dealership in St. Louis.The salesman cordially invited me to have a listen, but I declined.. What, miss an opportunity to expand my world, to hear a state of the art rig? Yes, I turned it down, partly because of the foolish notion that I would be wasting his time, but also because I thought, "I will *never* be able to have a speaker like that!" Why dip a toe in a pool you will never swim in? Why take a bite of a meal you cannot consume? At the time I had a mediocre mid-fi system as I had little money and growing school debt. Hearing that system would have ruined me for enjoyment of my humble rig.

Looking back, at the time the visceral thought deeply recessed in my cranium was, "I would never spend that much on speakers!" My perspective was that there was no way, no matter how it sounded, that it would be worth it. That is an easy conclusion to sustain when one has *not* heard a system. The passage of time and growing income changes one's viewpoint. As a threadbare student I could not justify such extravagance, but as a man who has been at this hobby for more than thirty years with reasonable expendable income, I not only now understand it, with calculation and planning I pursue it. Having heard some elite products in my home and learning firsthand of the gulf of performance separating the best from the rest, purposeful extravagance is sometimes not so foolishly pursued.

A few months ago, I had the privilege to be invited to dine at the Singapore Cricket Club. I recall the sensation of an environment of mature wealth, not the obnoxious bling brigade of Hollywood or inflated egos associated with new wealth, but the easygoing and assured, low-key wealth of people who can distance themselves from the rest of the world even in the midst of it. In a city-country where land is exquisitely expensive here was a tract of green made over to be an outdoor playground amid towering financial district offices. It gave me a taste, literally, of the upper crust of society.

Two weeks later I was laboring in the sun on a 90-degree day in an impoverished neighborhood in Nosara, Costa Rica, hoisting five gallon buckets of rock and sand to shoulder height to pour into a large portable cement mixer. I was there with my family through our Christian church to help build a home for a family living in a rudimentary open-air shack most of us wouldn't consider suitable as a shed for a lawn tractor. The bleak physical work stood in stark contrast to the pampered country club experience, yet aside from the physical toil I felt comfortable there.

How could such different experiences meld in one person's life? These disparate experiences happened because barriers were removed; in the first case barriers to my admission, and in the second barriers to others' admission, helping them obtain a lifestyle closer to my own. Likewise in audio, economic and physical barriers prevent some from participation. Now, Sound Lab has removed the most significant barriers to entry into the Sound Lab club.

Breaking barriers

Roger West of Sound Lab knows about breaking barriers. In the 1970's Roger was designing speakers for the Electronic Industries Corporation, which owned JansZen Electrostatic Corp. Roger approached EIC with the idea of making a full range electrostatic speaker, but they turned him down as they felt there was no market for it. Roger disagreed and after discussion with his friend, Dr. Dale Ream, they formed Sound Lab Inc. in 1978. Sadly, Dale passed away two years later, but Roger kept the dream alive. Roger and Dale's vision allowed them to introduce a product that not only broke barriers but also has popularized the concept of highly realistic sounding domestic speakers.

The impetus for the introduction of the U-4iA was shifting cultural and economic changes of the past decade. Roger pointed out that the Great Recession of 2008 seemed to have a lingering, muting effect on discretionary spending, and that downsizing has become fashionable among the middle-age set. I see articles online continually touting micro houses, and those under 25 years of age seem more concerned about "experiencing" life than building a home. A giant speaker

would be a non-starter for those with moderate incomes and less square footage than two generations ago.

Consequently, the smallest speaker in the Ultimate line has been birthed, the technically named U-4iA, interpreted as the next sequential number in the Ultimate series with identical appearance, or "iA." It was a bolt of marketing lightning that the technical description phonetically yields "Euphoria." Some products are simply meant for greatness and the U-4iA is one of those products.

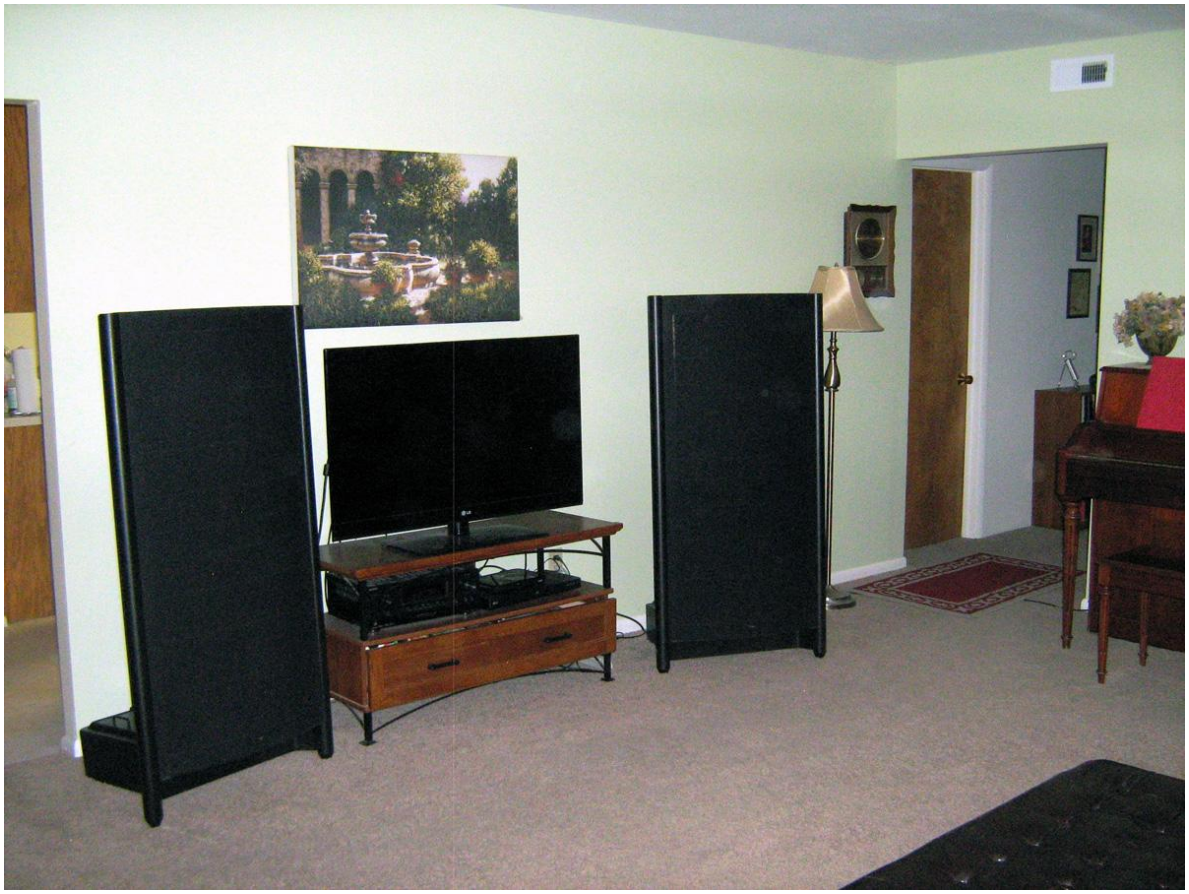
Like the big ones

As a member of the Ultimate Series, the U-4iA shares attributes both adopted from the other members of the line as well as shared with them. Development of the U-4iA has led to a revamping of the technology employed by Sound Lab to achieve a new threshold of ultimate performance. The long-standing appearance of the massive curvilinear drivers ensconced in grill cloth material and the ground-hugging power supply hanging off the back at the rear like an outboard motor on a boat is unchanged. Still, the introduction of massively thick metal framing in place of wood lends a seriousness and robust build quality that shouts, "I mean business!" The entire business arrives in three hefty wooden crates that are extremely well constructed and internally padded. You may not be able to drop them from a helicopter, but you can with some assurance ship them in the crates across the world without too much concern of damage. Those with cause to consider shipping will find Sound Lab to be competent crate builders.

Many are the speakers claimed to need two persons to set them up. In most cases, with some ingenuity, I have been able to do it myself as I am able-bodied and have both a light hand truck and heavy-duty furniture dolly. In the case of the U-4iA, it is taking unwarranted risks to attempt removal of the panels by yourself; best get a second set of hands to be sure. Thankfully, the 152-pound speaker is in two parts, the panel and powers supply/crossover, so it was not difficult weight-wise to bring them down the stairs to my listening room in my basement.

Moving them about when assembled is not entirely worry-free. While most people will assemble them in place, I needed to move them in and out of the listening room since I review other speakers. The construction of the frame and module attached is plenty strong to allow moving of the entire affair. I use a regular hand truck, place a large bath towel folded several times at the base of the hand truck to protect the bottom and lower sides of the electronics housing, then slide the apparatus under the housing and slowly lever the speaker back toward the hand truck. The speaker thus rests on the back of the power supply housing at the bottom and the top rests lightly against the top of the hand truck. The towel at the bottom helps greatly in ameliorating sway of the speaker, as it is actually resting upon a tubular footer welded to the housing. I use one hand to steady the speaker and the other to push the hand truck. Not terribly risky, but more so than moving most speakers. If you have less confidence, get the help necessary to do the job when moving them. If you can set them up near their final position that is the ideal. The frame is plenty strong to allow a mighty grip on the upper side posts to walk the entire assembled speaker on front footers to achieve small step-like movements for final positioning. Obviously, this should be done while the smooth footers are installed, then once in position the spikes can be inserted in place of the footers.

Also provided are aesthetically appropriate solid milled caps for the frame's side and back metal tube supports. I advise taking them out when moving the speaker. The framework is finished in a black, eggshell-like color that appears a touch more reflective than a flat paint. Generously sized spikes with spike cups to protect hard floors are included. Angling of the speaker's front baffle forward and backward by use of provided spacers allows elevating the soundstage to one's preference at four positions: 0, 2, 4 or 6 degrees. Roger points out that "*tilting the panel rearward introduces a vertical component in the sound wave that invites ceiling and floor reflections. Tilt angle is normally slight, so the effect is usually sub-aural.*" The owner is advised to use the least amount of angle of tilt necessary. If most listening will be done while standing, the backward tilt becomes more important, as the speaker has little vertical dispersion. Roger states, *"the vertical limit of the sound field is essentially the height of the speaker, thus the ear needs to be within these limits to obtain optimum sound quality."* This is nothing new; most panel speakers have severely limited dispersion due to the nature of their flat diaphragm. However, standing and listening at the back of the room, approximately 18-20 feet away I did not sense a greatly compacted soundstage. I add that if a person is listening to a very large panel, taller than the U-4iA, or in a very near-field setup, they may wish to tilt the speaker *forward* slightly to focus the soundstage at the listening position, otherwsiea great deal of the sonic event may pass overhead. I do so with both the Kingsound King III electrostatic speaker as well as the Legacy Audio Whisper DSW Clarity Edition speaker, both close to 6' tall.



The power supply and crossover

The power supply/crossover unit, that is the top plate of this structure that Roger refers to as the "electronic plate," holds all the electronics, and the shell of the chassis surrounds it. There is no bottom to this enclosed power supply, but rather it sits open directly on the floor, which makes access for assembly easier. Packed along with it is the thorough and technically clear Owner's Manual. The Manual suggests additional steps to assembling the power supply; however, it appears that Sound Lab now ships it fully assembled, calling for only a few well-explained and illustrated connections to make it operational. Access to the bolts anchoring the panel to the power supply is through the open bottom. If the speaker is assembled on carpeting one can gently lay down the speaker's panel on its face, guide the power supply – careful, it's about 70 pounds – to the proper location on the back of the panel with the integral heavy gauge bolts protruding, and affix it with the nuts provided. Do so carefully as the positioning of the power supply is done blindly, another reason to have a helper if you are unsure of yourself. Not to overly worry, however, as any scratch on the power supply while aligning it will not be seen because it is flush with the panel's frame. Three color-coded leads, red, yellow and black, are connected from the panel to the power supply. The red and black leads connect the front and back panel's stators to the high voltage output (secondary windings) of the audio transformers, and the yellow lead connects the panel's membrane to the bias supply. The Owner's Manual, in an exemplary fashion, explains all these steps such that anyone handy with a socket wrench should be able to complete the assembly.

The top of the electronic plate has the expected 15A IEC connector for the power cord, which is mounted vertically as opposed to most components that accept the power cord horizontally. You might need another foot or so in length of the power cords to reach outlets when the speaker is in the preferred position. Best to consider this prior to final placement, although I would not hesitate to get new power cords for the speakers if positioning would be compromised in order to reach a power outlet in the room. My biggest gripe with the build of the speaker is the miserably invisible speaker post markings. It is neigh unto impossible to see the miniscule "+" and "-" near the speaker posts. In anything less than direct sunlight or a flashlight held right at the posts it is difficult to even locate the markings. Sound Lab should change this immediately. There is no discussion of the orientation of the terminals in the Manual, but regardless the markings need to be impossible to miss. It is a statement of overall satisfaction that this was my only gripe about the speaker.

There is a Bias adjustment along with three equalization adjustments labeled "Bass, Midrange, and Brilliance (treble)". The Bass and Midrange controls have four steps which operate in 3dB increments marked; -6dB, -3dB, 0, and +3dB, while the Brilliance control affecting the treble is continuously variable, devoid of numeration, and is at a flat setting at the 3 O'clock position. I did not see any discussion of the Brilliance control in the Manual and would expect this to be updated in the future.

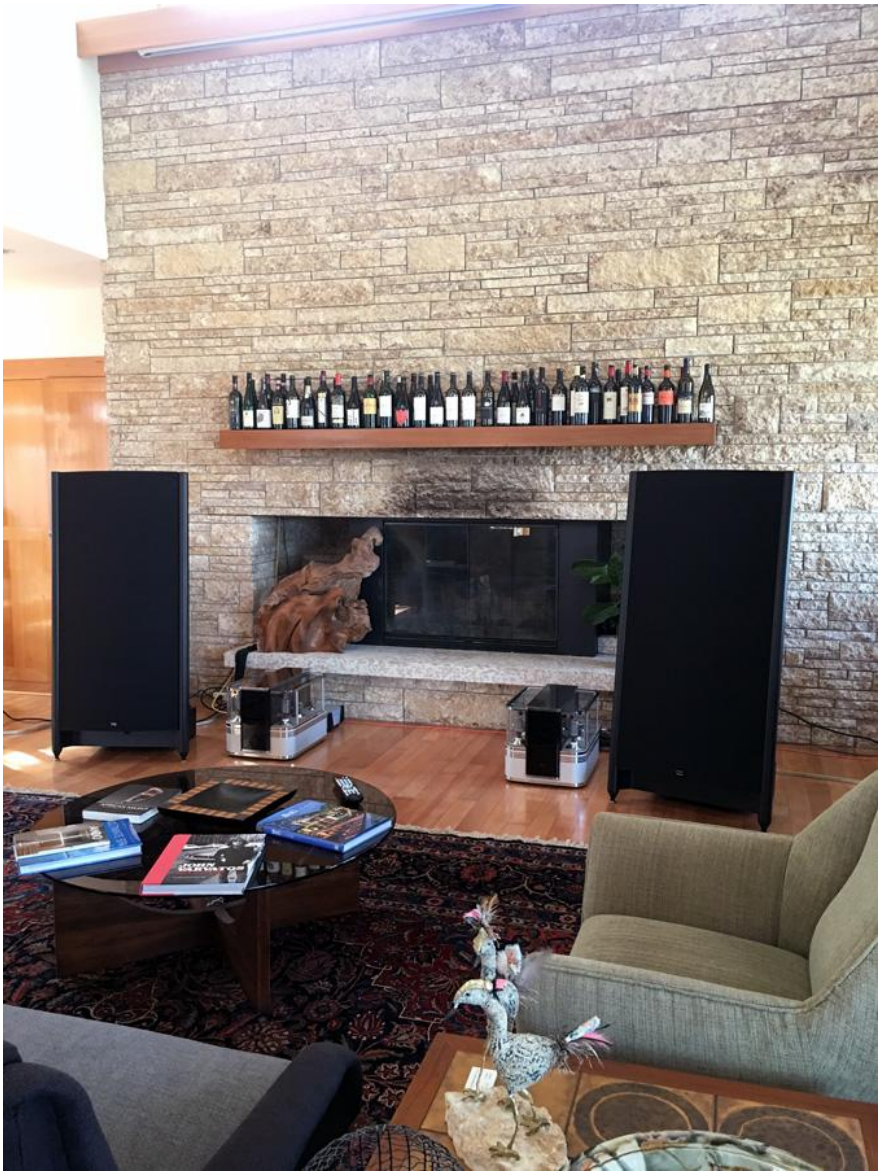
When I adjusted the Brilliance control via the dial atop the electronic plate, I was surprised that it seemed to have no effect to the point that I would say it failed my Law of Efficacy. In every

instance where I have been able to adjust electronics while standing near speakers, even behind them (excluding)dipole speakers, I can easily hear adjustments of +/-2 or +/-3 dB, whether adjusting the bass, midrange or treble. Even switching out jumpers on bi-wireable speakers confers an immediate change that is easily heard. It seems the Sound Lab Brilliance control is *exceptionally* subtle in its effect and, as Roger indicates, not a make-or-break adjustment. I suggest the user set it and forget it and focus on the aforementioned Bias adjustment, Bass and Midrange controls.

Adjustments to the Bass and Midrange tone controls were instantly discernible as I stood behind the speakers and changed them. I concur with Roger that these adjustments are very handy for tuning a system. Some might question the use of tone controls on a top end speaker, however Roger points out that there are several conditions which might influence the sound of the system, including room acoustics, the "personality" of the assembled gear, and the variances between music sources. A degree of control can compensate for system, acoustical and recording deficits.

I found the Bass and Midrange controls highly efficacious. As the speaker is rated to reach 32Hz +/-3dB and I am accustomed to much lower bass, I wished to extract as much as possible from the speaker without distortion. A setting of +3dB was sufficient to lend added weight to the bottom end without overloading when listening to LF heavy music. My room is quite well damped, and similarly a boost of +3dB to the Midrange was sufficient to add sparkle to the upper end. A local Sound Lab dealer who heard the system and who uses a concert piano as a gauge of performance quibbled about my +3dB setting and asserted that his recordings were better served by the flat Midrange setting. To me, the reversion to the 0 setting buffered the immediacy of the piano, and I pointed out that the microphone placement in the recording was right at the piano versus backed off from it. We didn't agree, but the speaker proved highly agreeable in that it could accommodate either of our preferences, making us happy with our preference. The U-4iA can eliminate hand wringing from frustration to obtain that last smidgen of change that would make a listener relax fully.

The last user calibrated control is the Bias adjustment, which sits along with the other controls on the top of the electronics plate and is changed with a small flat-head screwdriver. I mention it last, but it is necessarily the first adjustment made when setting up the speaker. The Bias supply places a fixed charge on the membrane. Too low of a setting and the speaker will have lower sensitivity, which means the amp will not drive the speaker optimally. If the setting is too high a crackling-like noise will be emitted from the panel. The noise may be intermittent and reveal itself only at peaks. The optimum setting is about 1/8 rotation of the control counter-clockwise from the position where there is incident of the crackling sound. I adjusted the Bias twice; a second tuning was necessary the first time I listened to extreme low frequency music at higher levels. The Bias is line regulated so that once it is set any fluctuations in the AC line voltage will have no effect on the speaker.



New developments for the panels

We will get to the systems I set up and listening impressions shortly, but first we should appreciate the enhanced electrostatic panels. Roger shared more information about the panels than some manufacturers do about their entire product. Painstakingly, he ensured I understood their design principles and performance enhancements. Several terms used in describing the new technology caught my attention, including “Bass Focus,” “single monolithic diaphragm” and “distributed resonance.” Being aware that a variety of layouts are employed by manufacturers to orient the bass, midrange and treble sections of an electrostatic speaker, I peered with a flashlight into the innards and was surprised to see segmentation denoting larger sections at the top and bottom decreasing in width moving toward the middle. My first thought was, “This is a

D'Appolito setup!" A D'Appolito distribution of the drivers forms a mirror image with the Bass/Midrange on top and bottom and the Tweeter in the middle (aka MTM). It was named after its inventor, Joseph D'Appolito, who used it to address lobe tilting of a more traditional TM or MT configuration. It allows the tweeter and midrange drivers to be placed into a simple front baffle and addresses the need for physical or electronic time alignment between the tweeter and midrange.

However, that was not what caught my fancy. Rather, it was the mid-height wide band *across* the middle, the side-to-side width of the tweeter section, which impressed me. I have been spending what little free time I have when not engaged in reviewing to experiment further with my Landscape Speaker method. Early on I used the quasi-D'Appolito configured Daedalus Ulysses placed on a custom Sound Anchor stand having complete adjustability to put the speaker on a horizontal plane. The method sonically mimics a picture taken from landscape perspective versus a portrait perspective. The Ulysses was interesting enough to merit further experimentation, and I have proceeded to move to a second phase of the Landscape experiment, which will be revealed in time. To my ear, the width of the U-4iA's midrange and treble is comparable to the Landscape method I employ, the primary difference being that the Sound Lab carries the width across the entire frequency spectrum and the complete height of the speaker, ergo a panel speaker.

Here is where an electrostatic speaker shines, in the vastness of the acoustic canvas it paints with vivid colors. Big scale sound is a big pleasure to the ear and is a primary reason why panel speakers continue to find favor, especially for recordings of large-scale performances. This smallest Ultimate cannot compete with its larger siblings in the absolute scale of the performance, but it competes exceptionally well with even large dynamic floorstanding speakers of great price.

The Kingsound King III, another sizable electrostatic speaker that I reviewed, employs a far different method of arriving at the same goal. The King III is what I call an LSESL, or Line Source Electrostatic Loudspeaker, with seven bass drivers longitudinally oriented one above the other, and alongside three Mid/Tweeter drivers oriented vertically, one above the other. The most apparent and critical performance difference is the King III uses multiple individual drivers versus the U-4iA's single driver.

Here is where the distinctions become somewhat blurred in my view; the U-4iA is also segmented in a sense as Roger describes the driver membrane: *"Specifically, the membrane movement is blocked at calculated vertical intervals, based on a distribution 'law' that equalizes bass response."* The movement seems to be dampened at critical places similar to how a piano string can be dampened by the hammer that rests against it. Judicious placement of blocking to use the peak resonances to advantage is a process Roger calls "distributed resonance," and it begins at the location where the U-4iA's membrane produces 32Hz.

The intervals, and there are several, occur more frequently as they move from the upper and lower limits toward the center – these are the cross sections I saw initially and account for the sonically D'Appolito-type distribution of sound from the speaker. The critical damping, along with 12dB per octave (4^{th} order) filters, allows the single membrane to radiate the necessary spectrum of sound. As Roger states, *"All of our panels are based on the principle of a vertical*

line source." Additional treatment of the membrane is done vertically by use of "radiating areas" which are attached to the top and bottom of the driver, and which seem to cause a bend in the Mylar, thus producing a curvilinear result. To the untrained eye they look like additional blocking, so that the driver looks to be segmented with a quasi-checkerboard appearance. Roger impressed upon me the *singular* nature of the driver membrane, yet for lack of better term it is parceled to achieve the curvature and frequency distribution.

These methods resulted in an increase of +6dB dynamic range in the bass, which was termed "Bass Focus," and has been adopted from the development of the U-4iA and applied to all Sound Lab panels. Combined with the most advanced electronic plate to date, "which uses the Toroid II audio transformer and Hot-Rod super quality audio components," Roger states the U-4iA is endowed with the expertise of Sound Lab at the highest technological level. Incredibly, it captures the same frequency response specifications as the largest model, the U-1PX! Even more incredibly, this particular expression of Ultimate series speakers fits into my room!

All this technological talk is daunting, but the speaker is wonderfully user-friendly. A lot is going on under the surface, but the user only needs to be concerned about what is on the surface, the obvious controls. Once the speaker's Bias is dialed in, a simple task, and the preferred adjustments made to tone, the owner sits back and relishes the results. A single pair of speaker cables is required for the robust metal binding posts. The owner may wish to obtain a proper speaker binding post wrench to ensure that if spade terminations are used they will be cinched down well and not work their way loose. During the extensive review period the speaker performed flawlessly.

Placement

Initially I placed the speakers at the position where I use all panel speakers, approximately six feet from the front wall and about 20" from the side walls. This allows an 8' gap between them with the listening chair located 12' from them. However, with experimentation I settled on anarrower placement, approximately 7' between them, and this afforded an even more solid soundstage with no softness in the middle. I recommend that owners try both wider and narrower setups to select their preference.

The owner can use the U-4iA in a perceived deeper position, with the speaker placed almost against the front wall. Roger urges that in such a configuration the toe-in must be severe, on the order of 30 degrees, to avoid reflections off the front wall (behind the speakers). For more distant placement from the front wall one may start with the speakers parallel to the front wall and move the speakers in by 10-degree increments.

Power cords

Each of the speakers requires a 15A IEC power cord. I try not to use anything longer than 2 meters. Roger feels that the U-4iA's power supply is so robust and impervious to AC line noise that it would be inconsequential to change power cords from the stock cord supplied. I disagree based on my usage of not only this speaker but also the Kingsound King and King III electrostatic speakers. I regularly swapped the Silnote Poseidon GS and Clarity Cable Vortex

power cords in this review between the speakers and the amplifiers to create an instantly noticeable, highly efficacious shift in tonality and sound staging.

I am not surprised at Roger's response, as I have encountered several manufacturers who, according to design principles, eschew aftermarket power cords. However, I do the comparison by actually trying different ones, and the real world changes are to my ear important enough to merit special attention by the owner. If you are skeptical of my findings, I encourage an experiment by using a $100 second-hand power cable by a reputable manufacturer, as even an affordable power cord can reveal discernible changes. When you spend $20K+ on the speakers you owe it to yourself to try such a low cost method of enhancing the system.

Technological comparison to Kingsound King III

Aside from the curvature of the diaphragm versus the King III's multiple flat diaphragms, how does the Sound Lab panel technology differ from that employed by Kingsound? The U-4iA seems to maintain the integrity of a single driver while forcing it to operate like individual ones. Avoidance of comb filtering resultant from use of multiple similar drivers seems to be the most direct benefit. The U-4iA has a far greater sense of the sound being "cut from the same cloth" than the King III. While the King III has larger scale, for it is a taller speaker, the U-4iA has an edge in absolute cleanness and a sense of more speed in transients due to the single driver with blocking technology. In fact, the coherence and cleanness of the U-4iA reminds me of extreme high-end dynamic speakers. Throughout the review process I kept thinking that the U-4iA would be an electrostatic that could draw some hard-core dynamic speaker fans away from Magico, YG Acoustics, Rockport, and the like. This is no disparagement of these other speakers, but rather an endorsement of the tightness and completeness of the imaging the U-4iA produces.

I am in amazement at the *solidity of the images* that the U-4iA produces. Quad electrostatic speakers have been favored for their coherence due to the circular distribution of the electrostatic elements, vaguely like a concentric driver. In the U-4iA we see a similar coherence. The Sound Lab does remind me of a Quad, but with a far higher performance level and, in my opinion, more reliability. Several years ago I attempted repeatedly to get a review of either the Quad 2912 or 2812 via emails and phone calls, but never received a response from the North American distributor. Not long after I saw the distributorship was lost. The manufacturing was outsourced to China, and I heard enough rumors of build quality problems that I was no longer interested. I understand that now Quad is back in North America, and I wish them success. Sound Lab has been refining its technology and has a tradition of good customer service. In this initial run the U-4iA seems to be an endearing and enduring design. You can hardly hurt it, as when you over drive it and the speaker crackles, you turn the Bias down and onward you go!

The U-4iA presents a more compact, more focused experience than the King III. The bass seems far more potent because it is more gathered, yet the Landscape type of distribution by the midrange and tweeter gives every bit as much a sense of wide-openness in terms of width of imaging. One does not get the 8' tall head singing with the U-4iA but rather a more true-to-life scale of the singer, as I have found with other Landscape systems. This is a critical point, as those with dynamic speakers will often condemn ESLs because they cannot produce a convincingly dynamic performance. That concern is eliminated with the U-4iA, as it is the most

potent panel speaker per square inch I have encountered. Friends with audio systems containing up to 15" dynamic drivers were astounded by the dynamic output of the U-4iA, as was I. I was dumbfounded by the amount of acoustic energy the U-4iA could propagate and with fantastic precision. With these introductions, let us proceed to the listening experience.

Systems and listening impressions

The initial system I set up was as follows:

- Mac Mini with HQ Player Software and upgrade PS Audio power cord
- Silnote Epirus USB Cable
- Exogal Comet DAC with upgraded power supply and Wywires umbilical
- Verastarr Grand Illusion Power Cord used with Exogal Comet
- TEO Audio Liquid Reference MkII Interconnects (RCA)
- SST Son of Ampzilla II Amplifier with Clarity Cable Vortex Power Cord
- TEO Audio Liquid Standard Speaker Cables (single wired)
- Sound Lab Ultimate U-4iA with Silnote Poseidon GS Power Cables

As the first few songs wafted across my ears my thought was, "I can't for the life of me understand why anyone would opt for a vintage Quad." Before me was a speaker with warmth, openness and generosity in the midrange and that special zip that an electrostatic provides, but done up in a grand fashion. At this time I was listening often to Everything But The Girl's *The Language of Life* 2013 Edsel Remaster that includes a great number of variant recordings, such as remixes, alternative rough mixes, home demos and live performances. It contains a very wide range of recordings for comparison on a system. This is a wonderful collection of stripped down instrumentals with raw vocals, cleaned up studio enhanced renderings, and bombastic LF remixes. The continuity of having one group of songs with its radically different iterations allows me to understand more precisely the performance of the U-4iA.

My first impression was that the vocals of Tracey Thorn were brought forward and more in line with the rest of the soundstage to the left and right compared to many of the other speakers I have used. I typically work with a generous toe-in, aiming speakers just to the outside of the respective ear. The challenge in such a setup is the tendency of the center image to be "sunken" (further away) relative to the right and left channel. It does add depth to the performance and gives the sensation of being mid-hall versus the front hall, where it seems one is plastered against the stage. It also tightly focuses the center image, an effect I much enjoy.

The movement forward of the center image was not shocking, and as one becomes accustomed to it is quite pleasant. My assessment is that the wide midrange and treble band across the midsection of the speaker is the primary cause of the more intimate center image. There is no sense of the sound field being chopped into segments left, right and center, or of gaps between them. With certain albums this is most helpful because not all vocalists are equally powerful, and in some recordings the instrumentals tend to smother them; I am thinking here of live recordings especially.

It is impossible to experience the U-4iA without the solidity and dynamic punch of the bass immediately asserting itself. Other panels I have used, including the King III, which reaches the same 32Hz threshold, do not have the visceral impact of the U-4iA. While not on the level of larger dynamic speakers with multiple 12" or larger bass drivers, the U-4iA did a remarkably fine job of infusing the cement and thick carpeted floor with some tactile sensation, an unheard of event in my room for a panel speaker sans subwoofer. The bass of the King III is spread out as typical with big panels, but the concentrated force of the U-4iA's bass via the Bass Focus technique is mighty impressive. LF in massive doses on remixes normally *kills* panels, but the U-4iA handled them like a champ. It must be understood that I am not listening at club or live levels, as I find no advantage to doing so. Listening at approximately 85-87dB did not seem to stress the speakers at all in the lower frequencies regardless of frequency extension.

I heard my first big crunch of stator crackle when I played the *Poem of the Chinese Drums* at about 90dB. Thankfully, the incident of the crackling is explained thoroughly in the Manual, because if an owner would hear this without understanding he might think his speaker was blowing up. It was fixed in a jiffy by a quick turn of the Bias control. In my initial setup I played more conservative music, but when I introduced the extreme LF the crackling showed up again and two minutes of adjustment banished it. It is a testament to the U-4iA's good design how close to the limit it can be run, losing little of its sensitivity to accommodate powerful bass. Grace Kelly's "Ain't No Sunshine" features a meaty electric bass, and as I trickled the level upward it was the Son of Ampzilla II, a rich and tonally warm amp, that ran out of steam before the U-4iA hit its dynamic limits. The U-4iA's bass hangs tight when pushed hard better than the King III.

Depending on the music, the amount of bottom-end energy could be excessive and would call for tonal adjustments to the speaker. Hootie and the Blowfish's "Use Me" continued the impressive demonstration of the U-4iA's bottom-end capacity, but was so overtly present in the lower frequencies that it was in danger of overrunning the upper half of the spectrum. I adjusted the midrange and treble to +3dB to compensate and an acceptable balance was restored. To my ear, leaving the tonal controls flat brings a more "tube like" character from the Sound Lab, versus adjustment upward of them bringing out a touch of solid-state forwardness. Note that this effect can also be further increased or decreased to one's satisfaction by proper selection of cables.

Another word about the *Poem of the Chinese Drums*; the U-4iA exquisitely renders the nuances of the mallet and drum skin interaction. With quite a large number of speakers, mostly dynamic or hybrid dynamic, the thump of the mallet whacking the drum comes off as a shuddering burst, an LF punch that has little character of other instruments such as piano and saxophone. To my delight, a splendid amount of the subtleties of the drum were retrieved by the U-4iA. Usually at that frequency, an electrostatic speaker coughs out a stressed throb, but the musical integrity of the LF created by the U-4iA was exemplary. This gave me the sense that it was more powerful than the rated 32Hz.

Changing the landscape

For my second system I swapped in the Wyred4Sound PCOCC Premium USB Cable and SST Thoebe II Preamp/DAC, all reviewed along with the Son of Ampzilla II. I placed the Verastarr Grand Illusion PC on the Thoebe II. The remainder of the system was the same.

Initially I swapped three USB cables: the Silnote, Wyred4Sound and an inexpensive Furutech Silver GS, which sounded thin, vacant and colorless compared to the others. The Silnote edged out the Wyred4Sound in this configuration in terms of cleanness and richness. It took only moments to hear that this was a complimentary pairing for the U-4iA. There was a magic about the Son of Ampzilla II amplifier and the U-4iA that reminded me of the Pathos Classic One MkIII amplifiers in Mono mode, which could be paired with nearly any components to create a satisfactory experience. The Son of Ampzilla II is a push-pull solid-state amplifier, and though it is 200wpc it drove the U-4ia as no other amp solidly. Even the lovely Red Dragon S500 class D amps in Mono mode at 1,000Wpc did not quite have the fortitude of the push-pull Son of Ampzilla II. It has the richness to get by as a tube amp substitute and the muscle to make the U-4iA mimic its larger siblings if slightly under-driven.

I am constantly amazed by the change that one component or a cable can produce in an audio system. Though I have been doing this for years it still thrills me and surprises me. The sharp reader may notice that the essential difference in the system was subtle, moving from a DAC with a preamp function to a preamp with a DAC built-in. I discuss the implications of this in the SST review. "Cool Man Cool" by Grant Geismann had a generous amount of the pop and boogie that I normally associate with the Vapor Audio Joule White 3 Speakers, a quick and ultra-tight dynamic speaker. The smallish form factor when well driven made the U-4iA sound *intense*, concentrated more so than expected for an electrostatic. Returning to Hootie and the Blowfish's "Use Me" revealed I had forgotten to turn down the Bass tone control on the Thoebe II from previous use, yet I preferred it to the flat setting. The overall impact in the Bass was greater, yet the tonal balance also was better. It would be a pity if the pairing of SST components brought about a worse result! There should be synergies attained when a company's preamp and amp are used together. This is not always the case, though, and I often find a superior result from mixing brands of preamp and amp.

Two sets of tone controls?

The Thoebe II also has tone controls that I extolled in the review. I *really* liked the subtle yet efficacious performance of those controls, and they operated as I would expect a proper tone adjustment; I struggled to detect sonic degradation from their use. Now, with two sets of tone controls, one on the preamp and the other on the speakers which one would prove most beneficial? The bass control on the electronics plate of the U-4iA had much less potency than the tone control of the Thoebe II. The initial +1 bass setting of the Thoebe II brought greater change to the bass than the +3 setting on the speaker. That might be expected as Roger was looking for subtle iterations of bass presence, while a preamp with tone controls might be expected to range more widely and provide quite a boost to bookshelf speakers. With floorstanding speakers the influence was prodigious. I elected to keep the U-4iA settings flat and adjust the tone with the Thoebe II.

Repeating the same song list everything was riper and more fleshed out. The center image was slightly more diffuse and recessed again, but no less pleasing overall. The *Poem of the Chinese Drum* was no more detailed than with the Exogal Comet DAC, but was even warmer, and the finger work of Grant Geismann's guitar playing was smoother. There was a closer affinity between these two systems than many others I build. While the Exogal Comet was somewhat lighter and brighter and the Thoebe II heavier and darker, neither was unacceptable. A room of listeners would likely be split down the middle in terms of preference between these two systems. It showed the U-4iA could be pushed toward the "lighter" end of the performance spectrum or the "darker" end without harming its charm.

Introduction of Salk Sound StreamPlayer Gen III

I have forged a review of my first dedicated file server experience with the Salk StreamPlayer III and I can hardly say enough about how revelatory it has been. Fans will read plenty about this digital sea change in my systems, but suffice to say here that the Mac Mini has been forever banished! Thus, the system morphed again to compare two iterations in which the only difference was the amplification; in the first instance the Red Dragon S500 class D amps in Mono mode at 1,000wpc, and the other the relatively more physically imposing but sonically reposing First Watt J2 JFET Amps sporting 25Wpc:

- Salk StreamPlayer III
- Silnote Epirus USB Cable
- Exogal Comet DAC with upgraded power supply and Verastarr Grand Illusion PC
- TEO Liquid Reference MkII Interconnect (RCA)
- Red Dragon S500 in Mono Mode with Clarity Cable Vortex PCs
- OR
- First Watt J2 JFET Amplifiers (stereo amps; use of one channel only as faux mono amps such that the power supply serves one channel)
- TEO Liquid Standard Speaker Cables
- Ultimate U-4iA with Silnote Poseidon GS PC

Starting this system with the Nelson Pass First Watt J2 amps caused a jolt, and a not altogether pleasant one. When a significant change has occurred to an audio system the owner has to first give time to adapt to the change, and it can be a jarring experience. The reader needs to take note that this was expected to be a challenging system as the amplification is admittedly inadequate. I would not run the U-4iA with anything less than 200Wpc, but I have always been a fan of big power. Roger reassures that several times in shows the big Sound Labs have been run with moderate tube power and have acquitted themselves well. I wanted to test it out for myself, but I would use lower power, 25 Watts per channel.

Here was a fundamental shift from a mellower, bottom-end fortified sound to a far brighter, seemingly upper-end emphasized performance. The canyon of bass depth shrunk to a chasm and the visceral aspects of the listening all but disappeared. As the Thoebe II with its powerful tone control was no longer in the rig, I found myself in short order upping the bass control of the U-

4iA. Still, there was no way to capture the same result because the speaker was fundamentally underpowered. For the U-4iA to sound overwhelming it must have high power and high current. If all that is played is chamber music and there is avoidance of all LF, then one could perhaps make a case for this setup, but it would take careful choices of cables, including power cables, to do so. In my estimation this is akin to climbing a snowy mountain without climbing gear; it's an uphill battle that is made unnecessarily difficult due to the mismatched amplification.

There is absolutely nothing wrong with the U-4iA or the J2 Amps, however they are not electronically ideal candidates for each other. With a speaker like the U-4iA you do yourself a disservice if you do not find proper amplification. The right amplification does not have to cost a fortune, as the Red Dragon S500 took to the U-4iA like bread to butter. The poor U-4iA was so disadvantaged by the J2 Amps, which were remarkable with the appropriate type of speakers such as the PureAudioProject Trio15 Voxativ under review, that I quickly replaced the J2s with the Red Dragons. Some people in this hobby have been very poorly guided to think that as long as one has adequate power the sound will be as good as can be obtained. Note well, *adequate for the High End usually means average and that means unexciting in the long term.* The prescribed minimum power of 50 Watts specified in the Manual of the U-4iA will get the speaker to work, but nowhere near the level it is capable of achieving. An extreme comparison of the 25Wpc J2 and the 1,000Wpc Red Dragon S500 reveals this clearly. Yet, I encountered one uniquely notable exception, which I discuss below, the Exogal Ion PowerDAC at 100wpc. It is a special case where the relatively lower power rating for amplification used with an electrostatic speaker belies the performance of the Ion PowerDAC. The bottom line is you want to make the U-4iA dance, not shuffle, and the amplifier makes all the difference.

The aforementioned Red Dragon S500 class D amps with their Pascal module-based sound have been my economical amp darlings for about a year now. They are the only class D amps I have used where my friend-critics visiting do not complain of the class D sound. I had to work a bit harder to get to that ultra-supple sound that the SST Son of Ampzilla II had, but I succeeded. The solution to the anemia from the mismatched J2 amps came in the form of retreating to these remarkable 12-pound bricks of class D power. A slumbering giant had been awakened, and a close approximation of the macrodynamics of the Son of Ampzilla II returned. I was falling in love with these Sound Lab speakers now. Given the proper front end they arose to challenge dynamic speakers' immediacy while retaining the classic ESL speed and openness.

The insertion of the LampizatOr Big 7 DAC, which like the Exogal Comet has an internal preamp, produced a setup that could perhaps be a contender for a best of show award. LampizatOr jacks up the output of their hybrid DACs such that one has to match them up well with gear or else the speakers will be *overdriven.* Considering that I had 1,000 watts on tap and the juiced output of the Big 7, I was ready to *control* the U-4iA!

The Lampi Big 7 is a warmer, more romantic DAC than the Exogal Comet. The Comet is sweet like white sugar and the Big 7 is like brown sugar. Here was a combination that made the U-4iA sing enticingly. The Big 7 is a tube DAC and the presence of tubes with more than adequate power brought the best performance thus far in the review. Note that the power was solid state, but the source was tubed, which captured the "best of both worlds" in this system for audiophiles who cannot tear themselves away from thermionic valves.

Partnered with the LampizatOr Big 7 and Red Dragon S500, Marcus Miller's "Higher Ground" sprang to life with each of the bass notes popping with energy. It's a particular pleasure to hear a very well recorded electric bass piece, and the U-4iA can handle the dynamics as well as open up the notes to hear the vibration of the strings in the air. Even when the string vibrates against the fret board it was clear to discern. Singer Sarah Jarosz is becoming a well-known artist in the audiophile community for her distinctly enchanting voice. I thrilled to how the U-4iA rendered her song "Green Lights." There are backup vocals along with her at the onset of the piece and in a lesser system it sounds like an effect added to her voice. However, with the U-4iA those backing vocals were teased out for full enjoyment.

Systems with the U-4iA were moving steadily from performance oriented to easeful listening. It can be tricky to tame an ESL such that one can spend longer time periods in front of it. The U-4iA, like all ESL speakers, takes a bit of massaging to elicit enchantment, but it responds readily to component and cable changes, making it very likely that you can tailor it to your pleasure. I do not subscribe to the viewpoint that extreme performance and extreme ease are incompatible, necessitating that one back off from precision in order to gain a relaxed listening experience. On the contrary, I begin to relax when a system sounds utterly real, and that requires extreme precision.The less accurate the speaker, the more problematic the result, and it's not fun to sit in front of a high dollar rig and hear problems. The U-4iA offers very, very few potential problems and makes it most likely that you can obtain the sonic signature you seek with both precision and a relaxed quality to the sound.

A romp with the Exogal Comet and Ion

I have saved the best for last in terms of systems and the performance of the Sound Lab U-4iA. Far and away the most remarkable experience with the U-4iA happened with the Exogal Comet and its new partner, the Ion PowerDAC. You will want to take the time to read my extensive review of these products, as they are a marvelous example of a new breed of components with the ability to vastly improve your enjoyment of the hobby. In the review of the Ion I go so far as to say that the digital amplification it represents will upend the domestic amplifier sector of the audiophile HiFi market.

The Comet and Ion are two of the most wondrous pieces of electronic kit I have laid hands on in 12 years of reviewing. They whisper to me that we live in a magical age of audio, a time when the convergence of convenience and sound quality is reaching a high state of synergy, and this is happening below the cost level expected of extreme audio components.

The Ion contains a true digital amp (as opposed to Class D, or "switching" amplification), is rated at 100Wpc, and was not designed with an eye toward driving less efficient panel speakers such as those from Magnepan or Sound Lab. However, used within slight limitations it is *extraordinarily* good sounding with them. The Comet and Ion were most praiseworthy with all five speakers of various technologies I used in the Ion review to the point that it set new performance standards for all five! In my reviewing, I have never witnessed any system, much less one brand of gear do such a thing. Usually I have to reconfigure the system, that is exchange components, to address each speaker's strengths and weaknesses, but the Comet and Ion optimized every transducer's characteristics. Consider that an invitation to try them.

The chief attribute for which electrostatic speakers are treasured is a sense of speed, or quickness in transients, and perhaps only certain horn speakers are on a par with electrostatics in that regard. There is a vibrancy and invigorating feel to hearing a fast panel speaker in full flight. Imagine how much more the magic of a panel speaker is enhanced when the electronics can operate commensurately quickly. As I discuss in detail in the Ion review, the Exogal combination of DAC and PowerDAC are blisteringly fast, and they snap even electrostatic speakers to attention as though they had been previously sloughing.

Treble and midrange

One might wonder how this superfast combination affected the treble, as it is not uncommon for speakers perceived to be "fast" to also be considered harsh. Poor treble reproduction doesn't float, either it spits at the listener with staccato bursts, or seems melded into metallic smears with points of emphasis. The treble from the U-4iA hangs in the air and wends its way through the music, as opposed to spattering over the music. A fundamental reason for this is the width of the driver section dedicated to producing it. Treble as heard from the U-4iA is fundamentally different from a point source tweeter. In a wondrous fashion the treble is teased apart just a bit and opened up, making it perceptually more 3-D than point source treble. I realize we are speaking of very small waveform, but every instrument produces notes with their own acoustic envelopes, and treble notes are no different. When they expand ever so slightly from a wide-bodied driver such as the U-4iA they seem more natural and shimmering, less piercing.

The midrange also benefits from the curved, larger driver membrane. Like the classic Quad design where the midrange was centered, so also the midrange is centered in the U-4iA. Yet it avoids the "eight foot head" effect from stretching the image too tall. Those who love coherence and enjoy full range, high efficiency speakers will want to hear the new driver configuration of the U-4iA because the primary conditions that entice full range speaker lovers will be heard in the U-4iA. A spookily solid and warm character is fairly easy for the U-4iA to produce with a variety of gear, so vocals fans take note.

I do not spend much of my time listening to Classical music, but I do enjoy the sound of a symphony. I play soundtracks employing orchestras such as The Perfect Storm, Out of Africa, Transformers, etc. If I play masterpieces it will be from a "Best of Mozart" or "Symphonic Favorites" collection. Yes, I confess I lean toward schlock symphony, and I do not care if you are displeased. It doesn't take uppity music to determine the superiority of an audio system, nor to enjoy it. When a person knows how to tune and assess an audio system any genre of music can be used, preferably the one that is listened to most consistently. It is possible to improve the sound of a system using only electronic music.

My point in discussing this lies in the fantastic detail retrieval and succulent midrange of the U-4iA. This speaker gives some of the most convincing choral and symphonic playback I have heard. I do enjoy John Rutter's work and his choral piece, *The Prayer of Saint Francis*, is centering both spiritually and acoustically. The U-4iA is expressive enough that many individual voices are evident in the choir and their individuality preserved, yet melded together, as when one steps back from an impressionist painting until it just resolves and forms something closer to a photograph than modern art. Or perhaps the analogy of a camera lens focused to allow

examination of the particulars of the subject is more apt. I sang in choirs from grade school through college, so I like hearing massed voices, and with Rutter's work I never felt more able to slip into the male chorus and make my attempt at a sonorous contribution than when the U-4iA was playing it.

The soundtrack to *Out of Africa* would likely drive upper crust listeners bonkers with the metronome-like consistency through track after track. It's not Vivaldi by any stretch of the imagination, but as I hear it from the U-4iA it captures theswaying grasses of the savanna and herds of animals roaming freely so well in my imagination that I can picture myself overlooking them from an escarpment. I hear the many individual strings playing in concert to round the next note like fields rippling by individual stalk with nearly liquid fluidity, and I get lost in the moment. When a speaker can do that for a genre I don't care all that much for, it's a great speaker.

The one drawback of the Exogal and Sound Lab pairing

There are two aspects of the pairing of the U-4iA and Comet/Ion Power DAC components to be considered, the exquisite sound quality and the slight restriction on the listening level. Restriction on listening level is normally a deal breaker for those considering amplification. After all, if the amp can't drive the speakers in an unlimited fashion, then what good is it? I ask you to hear me out on this issue, as the takeaway for those willing to accommodate a wee bit of governance in use of the Ion is more than worth the constraint. Again, for an extensive discussion of the operational interaction of the Comet and Ion with the U-4iA, or any panel speaker, see the Ion review. This will be a summary of that explanation.

The Ion is a complementary component containing additional DAC functionality for use *exclusively* with the Comet DAC (no exceptions for other brands and components, so don't bother to ask Exogal). Think of them together as a two-chassis DAC. However, the Ion also has amplifier functionality, so the Comet is a DAC with preamp functionality, and the Ion presents an upgrade of the DAC with amplifier functionality. They combine to form a complete package of extreme performance DAC, preamp and amplifier. The Ion uses a unique digital amplification technology that is stable into electrostatic and magnetic planar speaker loads. However, when run at the limit, nearly at maximum output (about 97 or above on the Comet's digital display) as the speaker's demand for current exceeds that provided by the Ion, the protection circuitry triggers a shut down. No harm is caused to components or speakers. The Exogal components reset in a matter of about one minute from restarting. Exogal is working on a softer response to the excessive current demand in which the volume will be reduced incrementally rather than the components entering protection mode.

Note well, as with the First Watt J2 amplifier this is a discussion pertaining to compatibility of operations and not quality of the electronics. I have no doubt that if driven to absurd levels the Kingsound King III electrostatic speaker also would cause an over current demand and cause the Exogal Ion to shut down. However, I did not experience this, as I did not take the King III to as high listening levels as the U-4iA. The listening level at which the Ion shut down was *90dB*, well above where I recommend audiophiles listen to music, save perhaps some symphonic music where the peaks might be briefer.

There are sizable differences in the recorded level of digital music tracks, and these come into play with low to moderately rated power amplifiers. Obviously, a piece of music engineered at lower volume must be played back at a much higher amplifier output to achieve a higher listening level. This is typically an issue with amplifiers having lower power ratings paired with less efficient speakers as it calls for the amp to operate near its maximum and, in the case of many amplifiers, the sound quality degrades at that point. My first point in defense of the Ion as an "amplifier" for a panel speaker is that the sound quality *never* degrades at any point in the operational range of the unit. It matters not whether the Ion is run at 50 or 98 on the Comet's digital readout, the sound quality will be preserved. The Ion seems impervious to sonic degradation due to elevated output. There is no fading, falling away of dynamics or harshness introduced prior to the protection circuit being engaged.

The protective circuit, indicated by the letters "IONOVT," was only triggered twice during the review period, though I had used the Comet and Ion with the U-4iA extensively for weeks and with a global sampling of musical genres and recordings. The instances when the protection circuit was tripped were when I inadvertently maxed the output, literally pegging it at 100, in an attempt to play a softer piece of music louder, and when Iplayed a track with extremely aggressive LF at a similarly high level. In other words, there are very defined instances where it is possible that the playback level of the music will be absolutely limited by the matching of the Comet and Ion with the U-4iA or another less efficient speaker.

What percentage of recordings in the universe of material available might fall into that category? It may depend somewhat on one's preferences. For instance, a few older mono recordings or quiet chamber music requiring the Ion to be operated at maximum power *may* present challenges to playback at higher levels. However, the vast majority of music engineered is well above the plane where one would have to jack up the output to an appreciable listening level. I suspect that when listening to a wide variety of musical genres and artists one might encounter a level limitation once in every 500 pieces of music. Alternatively, certain genres of music have a ridiculous amount of LF, and if the listener wishes to hear them at close to live listening levels, then they would be bumping into the limits of the Ion's output regularly. While this is an important point, it likely will not affect a large majority of hobbyists. That is why I am bullish on the combination; if it were a pesky issue I would discuss the combination of gear as severely limited rather than very slightly limited and recommendable.

When I encounter a potential drawback, as in the case of the high SPL limitations of the Ion with panel speakers, I consider whether the benefits more than offset the drawback. If the performance were not utterly glorious I would move on to another system configuration, but the outcome of pairing the Comet and Ion with the U-4iA is so special that it cannot be overlooked. It quite simply has yielded top-level sound, and not just for an electrostatic speaker, but for *any* speaker technology.

Thus we segue to the second aspect of the Ion and U-4iA match; I have been deeply impressed by the transients experienced with this system. The sharpness of images, the ability to stop and start superfast, to explode with instantaneous power and do so nearly without limitation to the listening level is akin to riding on a high performance motorcycle – you will not forget the ride! Playing contemporary music like Lorde's "Royals" or London Grammar's "Strong" surprises

because the energy output of the U-4iA is monumental, while at the same time the finesse is exquisite.

Sound Lab has placed the U-4iA in the Ultimate line and promotes it as performing at nearly the same level as its flagship speaker, the U1-PX. The performance specifications are even closely the same. Having heard several representatives of the Sound Lab family, and the U1-PX, I concur with that designation. In fact, I consider the sound of the Comet and Ion together with the U-4iA when judged by strict audiophile criteria to be superior to what I have heard of the U1-PX with Atma-Sphere amplification at shows. That comment is *not* to be interpreted as the U-4iA being a better speaker than the U-1PX, not by any means. It *is* a statement that the U-4iA is capable of being every bit as superb, and that the Exogal Comet and Ion make it so. I do not think I am going too far out on a limb to state that the technology employed in the Comet and Ion will challenge nearly any system regardless of cost paired with the U-4iA. Bluntly stated, the odds are heavily against your DAC and amp being better than the Comet and Ion. Whether you wish to believe me that a PowerDAC might holistically beat the pants off your big gun amplifier or mono amps costing multiples more is your decision.

I adore the richness of the Exogal componentry with the U-4iA, the filigreed lines of acoustic contour achievable only with artistic precision and the utmost authenticity tonally, which lets the ears settle on nuances. There is no distraction, no "tut-tut" mentally arising from telltale softness in percussion, occlusion of a cymbal's or chime's full reverberation, or sibilance in vocals. The system producing this result was set up as follows:

- HD-Plex Linear Power Supply with Clarity Cable Vortex Power Cord feeding the Salk Audio StreamPlayer Generation III server/streamer
- Silnote Audio Eprius USB Cable
- Exogal Comet and upgrade PLUS Power Supply with Verastarr Grand Illusion MkII Power Cord
- Exogal Ion Power DAC with Clarity Cable Vortex Power Cord (Note: The Comet and Ion are linked via proprietary EXONET cable. Though it appears as an HDMI cable it is *not,* and HDMI cables will not work with the Ion.)
- Hybrid speaker cabling consisting of a *parallel (not bi-wire)* run of TEO Audio Standard Liquid Speaker Cables and Clarity Cable Organic Speaker Cables *(Note: The placement of leads must be perfectly parallel, precisely matching connections. You do such speaker wiring configurations entirely at your own risk. I am not responsible for any possible improper wiring or incompatibilities resulting in potential damage to equipment!)*
- Sound Lab U-4iA speakers with Clarity Vortex Power Cords.

The outcome with this system is such that it would take a monolithic dynamic or hybrid dynamic speaker system, fully 2 meters tall, to generate as generous a soundstage. The wide dispersion of the U-4iA's midrange and treble are maximized by the Ion. However if the speakers are placed more narrowly relative to the primary listening position one should not expect perfect stereo imaging when sitting off axis. There is no "head in the vice" tightness, but the speakers, though curved, are still directional. Elevating them with the supplied spacers to tilt back the front baffle is recommended to raise the action happening center stage from about 3.5' off the floor to about 5-6' off the floor, an acceptable height for a realistic sensation of a live performance.

As discussed earlier the Kingsound King III is another critter altogether with its line array type technology. Previously, I had not found another decent sized panel speaker – magnetic planar or electrostatic that was in the realm of affordability to compete well with it. The U-4iA surpasses the King III in terms of overall coherence, the spatial relationships of performers on the stage, as well asgreater bass output and impact. To get the King III to perform on a par with the U-4iA I had to use the VAC Royal Power Supplies, two of the Legacy Audio XTREME XD Subwoofers, and aftermarket interconnects and power cables, pushing that speaker system's cost to $27k.

Especially with the Exogal Comet and Ion, the U-4iA reminds me of *very* costly dynamic speakers (think high five figures). I anticipate the U-4iA will give some vaunted and perennially well-awarded dynamic speakers a tough run for the money. In the U-4iA I hear many of the admirable qualities of such speakers, but without their drawbacks. Neither are horn nor horn hybrid speakers safe from this comparison. The U-4iA's full bodied, full figured midrange reminds me of the best SET amp and horn speaker systems. In a phrase or two, the Exogal and Sound Lab produce extreme audio and are a match made for discerning listeners. I do not often recommend specific electronics components with speakers in reviews, especially if there is a caveat, but in this instance I will.

A great, not-quite-as-big slice of Sound Lab magic

Sound Lab has succeeded in a towering accomplishment, making a more affordable, real world proportioned speaker that captures the essence of the enormous Sound Lab Ultimate experience. Let electrostatic fans around the world celebrate. Let fans of nostalgia Quad speakers graduate to a *serious* ESL. Now that the barriers to the Ultimate experience have been removed, let theEuphoria begin. For those who have coveted Sound Lab sound but have been unable to accommodate it, *now* is the time to pull the trigger. Fans who love electrostatic speaker sound and have found the reach to own a Sound Lab Ultimate series speaker too great, it is now within reach. If you have heard the U-1PX you have heard the soul of the U-4iA and you can confidently move ahead without fear of being shorted, pardon the pun, in the experience. If you want to skip intermediate steps and move to a showcase system, perhaps the best the U-4iA has to offer without spending another $25k minimum on components, match it with the Exogal Comet DAC and Ion PowerDAC system ($7,350). *Euphoria awaits!*

Associated Components:
Source: Salk Audio StreamPlayer Generation III with ROON interface
Streaming Music Service: Tidal
Playback Software: ROON
DAC: Eastern Electric Minimax DSD DAC Supreme with Burson, Dexa NewClassD and Sparkos Labs Discrete Opamp Upgrade; Exogal Comet DAC and upgrade power supply, LampizatOr Big 7
Preamp: TEO Audio Liquid Preamplifier; VAC Renaissance Signature Preamplifier MkII; Cambridge Audio 840E
Amps: Red Dragon S500; VAC Phi 200; First Watt J2 (two)
Speakers: Kings Audio Kingsound King III; Legacy Audio DSW Clarity Edition; Kings Audio King Tower omnidirectional; Vapor Audio Joule White 3; PureAudioProject Trio15 TB (Tang Band) and Treo15 Voxativ
Subwoofers: Legacy Audio XTREME HD (2)

IC's: TEO Liquid Splash-Rs and Splash-Rc; TEO Liquid Standard MkII; Clarity Cable Organic RCA/XLR; Snake River Audio Signature Series Interconnects; Silent Source "The Music Reference"
Speaker Cables: TEO Cable Standard Speaker; Clarity Cable Organic Speaker; Snake River Audio Signature Series Speaker Cables; Silent Source "The Music Reference"
Digital Cables: Clarity Cable Organic Digital; Snake River Audio Boomslang; Silent Source "The Music Reference"
USB: Verastarr Nemesis; Clarity Organic
Power Cables: Verastarr Grand Illusion; Clarity Cable Vortex; MIT Oracle ZIII; Xindak PF-Gold; Snake River Audio Signature Series; Silent Source "The Music Reference"
Power Conditioning: Wireworld Matrix Power Cord Extender; Tice Audio Solo

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