



A STEREOMOJO EXCLUSIVE WORLD'S FIRST REVIEW



LEGACY AERIS SPEAKERS

Price: \$18,500/pr

by
James L. Darby

I really detest writing rave reviews. In fact, I'd rather be stripped naked, hung upside down spread-eagled and have my testicles tapped with a silver spoon than write a rave review. (I'll pause for a moment for that visual to register...) Why? Because virtually every review we read in other publications is, to some degree, a rave review. They almost all end with "highly recommended", don't they? Stereomojo has published several reviews which end with "We do NOT recommend this product". Try and find that elsewhere.

The problem is, honesty is honesty whether you're writing a positive review or a negative review. After all, it is not our job to influence a buying decision on the part of our readers. No, our job is to provide as much information to you, whether pro or con, so that you can make the most educated buying decision possible.

This is the 2nd Legacy speaker we have reviewed, the 1st being the larger and more expensive Whisper XD, about which I said, *"There are many speakers these days that retail for well over \$40,000. It is our opinion, and that of many show goer's and other industry professionals, that the Legacy Whisper XD in terms of build quality, versatility, technology and overall sound quality competes with speakers that are far more costly. And that does not include the added value of having the designer of the speaker come to your home and custom tailor the sound to your individual listening space. We don't know of any other speaker at or near this price point that gives you so much, and as such we are proud to award them our Stereomojo Maximum Mojo Award."*

It might be of interest to know that even though the Whispers have long departed our home, they have always remained Linda's favorite speaker. Every speaker we listen to at home, in a stereo salon or even the many audio shows we attend, she always says something like, "I like the Whispers better". Until now.

The Aeris bristles with technology such that it would take encyclopedic length to go in depth with it.

Each speaker consists of six drivers in a 4.5 way design. There are two 12" woofers with spun aluminum diaphragms, rubber surrounds, totally enclosed neo motors, long throw suspensions



700 lbs

with cast frames. Each of the woofers has its own 500 watt ICE amp built in. Let's see, 500 + 500 equals 1,000 watts in each speaker. That's one feature that allows the speakers to score a good, amp-friendly 95.4 dB sensitivity. Those 1,000 watts per side do most of the heavy lifting.

Speaking of heavy lifting, when the pair arrived in their custom built wooden crates, the truck driver panted, "Man, these things weigh 700 pounds!" True, though the actual speakers only weigh 200 pounds each (cough...hernia...cough). When the 700-pound freight arrived, I had just undergone emergency shoulder surgery - torn right rotator cuff. Unbelievable pain. There was no way I could even lift a drill to open the wooden crates much less move them. Bill graciously flew down to set them up for me.

ABOUT THE DESIGNER

Bill Duddleston is a rather soft-spoken guy, one not given to brash talk, braggadocio or hyperbole. It was with some surprise he murmured to me that he thought his new Aeris might sound a little better than the Whispers. But wait. The Whisper is much bigger and more expensive than the Aeris. Why would he say the cheaper speaker is better than the more expensive one?

I've known Bill for several years now and he's one of the most brilliant individuals I've ever met. When he first walked into the listening room, he spotted a big subwoofer from another speaker system in for review. He grinned and said, "Well, it's got a good built-in amplifier ...I designed it". He then went on to tell me that the woofer was originally designed for Allen organs and continued disgorging various technical facts about its origin and sonic characteristics. He wasn't bragging or showing off, it was just Bill making friendly small talk. That's his world and he is a master of it. He's a real engineer, eloquent in physics, chemical engineering, mathematics and electronic engineering. He's the guy you wish you sat next to in algebra class. I believe he is one of the brightest lights in the speaker designing field today.

The pair I got was one of the first pair ever completed and its only playing time was three days at an audio show, so they didn't have many hours on them. After an additional 24 hours we settled in for a first listen. While they showed flashes of brilliance, they needed more time. The AMT's take some time to lose some harshness and sibilance. We let them run for a week with a variation of burn in cuts (specially shaped sounds and noises), white noise, pink noise, sweeps and very wide spectrum orchestral music and vocals. Easy to do with my music server set on continuous. We ran it at about 80dB while we were at work and as loud as possible at night with the sleeping quarters at the other end of the house. At 200 hours (including the audio show hours) things had smoothed out considerably, but there was still some sibilance with male and female vocals. It wasn't the nasty kind that smears the "s" sounds and hurts your ears. It actually sounded very natural. Then it dawned on me that what we were hearing on vocals without heavy processing (including "de-essers") was the perfectly normal but extremely clean and clear sound of human sibilance. Anyone who's spent any time in a recording studio knows that microphones and other things in the recording chain can emphasize "s" sounds or color them so they sound rather electronic. On well-recorded vocals, including ones I had recorded myself over the years with no processing, were extraordinarily organic, adding to rather than diminishing the musicality of the performances.

In addition to the two self-powered 12" woofers, there is one 10" accordion edge midwoofer and an 8" accordion, titanium encrusted midrange along with two very special tweeters. Both are Air Motion Transformers - one 4" and another 1" super tweeter.

Now you're probably thinking, what? All those drivers have GOT to have all kinds of phase problems, crossover grunge and everything else associated with anything that's not a single driver. Guess what. Me too. It does defy a lot of audiophile no no's. Looking at these and especially the Whispers, any sane experienced audiophiles would turn their collective noses up and spew chunks at the sight. So did I initially.

The only reason we did the world's first XD review is because a lot of readers wrote and said "Hey guys, you gotta review these speakers! You gotta HEAR them to believe them!" So we did. As usual, our readers were right on the money.

Let's talk some about the Air Motion Transformers that Bill uses for the high frequencies. The concept is not new. I was selling high-end audio part-time in high school when the original ESS AMT (pictured left) came out with the revolutionary Heil Air Motion Transformers. From the mid highs on up nothing could touch them in terms of detail, speed and transparency including the other brands we sold

such as
Magneplanar,
Bozak, JBL,

Dalquist and Advents. Lots and lots of Large Advents. The problem was, every pair of AMTs we sold came right back in a few days completely blown to smithereens. The Heils were hell. They wouldn't play loud for any length of time.

They have come a long way in forty years and are now used in several speakers. Bill said he owns literally every model ever made and has studied them at great length. The ones in the Aeris are not off-the-rack models, but ones he has designed and fabricated himself. He's taken a good mousetrap and turned it into a rodent death ray. In short, the material that forms the sound waves is folded like a multi-layer dust filter so there is much more area (but very little mass) to move air. Superior dispersion and detail with less distortion and coloration plus incredible speed as opposed to your normal domed tweeter.

Says Bill, "For me as a designer, Aeris is about tracing speed and dynamic contrast. In the driver selection for Aeris I used wooden blocks, cymbals, toms to study transient response. The acid test was playing these sound samples backwards at high levels. Any overhang from plosives was exposed immediately due to the instantaneous stop of the signal; they were no longer masked by reverberant decay. Some of the samples that Mr. Darby used in the tracks on the latest demo CD have a similar punchy quality.

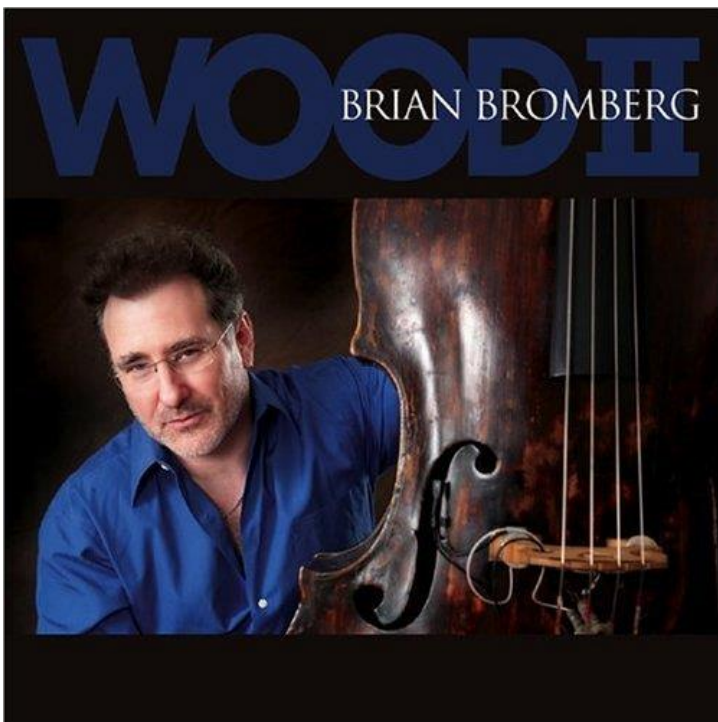


Differences in micro-dynamics between other speakers with good tonal balances was surprising.” And here I thought playing music backwards was only for devil worshipers.

He goes on to say, “The acceleration ability of Aeris significantly exceeds other high end speakers due to the large magnetic structures which provides a full bodied, natural feeling. Upright bass, and cello are to true scale and true weight. I invite users to peak through the grilles to see these refined Italian cast frames and motor structures.”

Bill likes people to visually inspect his work; so much so that he includes a green LED to illuminate his impressive crossover concoction. One in each speaker. I’m serious. They are located at the top rear of each speaker where one could, if he wished, view the crossovers through the grill material any time he wishes. The green sheen shows through the speaker surround in front however, so it looks as if some alien has taken up residence in them. Fortunately, there exists a toggle switch on the lower rear of each speaker that allows the owner to turn off the glow. At first I thought the lights were installed in just this pair since they had been built for show purposes, but no, they are standard equipment on every pair. Some may think they are cool, but they remain in the off position in my house. Now if they would only pulse with the beat of the music...

As for the “scale and weight” he mentions, that’s no joke. One of my favorite bass testers lately has been a cut from bassist Brian Bromberg’s album “Wood II”. I was in an elevator in LA for an audio show when I heard a couple of guys, obviously attendees, talking about good music to test speakers bass qualities. I chimed in that Brian Bromberg is good for that, to which one guy queried, “Yeah? Which one?”



I, unfortunately, replied with great enthusiasm, “I got Wood 2!”.

The cut is a bass solo of the old Kansas rocker “Carry On Wayward Son”. He attacks the upright bass fiercely, producing extreme slapping of strings against the fretboard and powerful, gut wrenching low frequencies such that would cause many speakers to roll over and play dead. The Aeris seem to just smile and say, “Is that all ya got”? No strain, no apprehension that they might be just on the edge of compressing, distorting or even doubling. Again, there was no sense of listening to speakers at all. Effortless.

But then I threw the big gun at em’. Yeah....*pipe organ*, baby! It might be important for you to know that I have played many

wonderful and monstrous pipe organs in my day, including the monster Mother of all pipe organs known as the Wanamaker located in Philadelphia in, of all places, a downtown department store. That’s it in the picture. I know what pipe organs sound like. Almost as importantly, I know what they feel like. The Wanamaker is the largest working pipe organ in the world. It is one of the few in the world that has a 64 foot rank in the pedal section. Capable of 6 Hz. Yes, that means there are pipe that are actually 64’ tall. The Aeris is rated to go down to 16Hz. You don’t hear it, you just feel it.

I have several recordings of the organ including the video of myself, but I called up the “Magic!” cd of Peter Conte playing the Wanamaker. The paintings on the wall began to vibrate noisily and the chair I was sitting in felt like one of those vibrating chairs you see in Sharper Image. And this was at moderate volume. The room was solidly pressurized. Now THAT is a wave launcher! It wasn’t just about the quantity of low frequencies, but the quality as well. I’ve simply never heard bass this deep with such accurate pitch, texture, unbridled, effortless POWER. The grand scale of that massive pipe organ was inhabiting my listening room!

One of the biggest challenges for any speaker designer is to overcome the enclosure or the baffle as it’s referred to in audio speak. The laws of physics dictate that when energy is produced it can’t just be smothered or eliminated; that has to go somewhere. Most speakers are built with MDF and stuffed with some type of acoustic filler. Still, the cabinet will vibrate causing colorations, distortion and all kinds of other nasties. I’ve seen speakers made out of steel, aluminum, Corian and even granite. They can mask the problem but not eliminate it.

Another way to deal with cabinet interaction is to just not have one in the first place. It’s called open baffle, not a new concept either, we’ve reviewed many of them. You can see the grill material at the sides and back of the “open” speaker cabinet at left. If it’s done right, nothing does imaging and sound staging better. If it’s done right...and Bill does it right. The woofers are in a sealed, separate chamber, but everything else is baffleless. I’ve never heard such an airy, open almost limitless soundstage. Nothing ever sounded like it was coming from a box.





I've also never heard such hyper detail, both micro and macro. That includes some pretty outstanding ribbons and panel models. Usually such extreme level of detail is accompanied by edginess and a quality I call mechanical. Sometimes there is even a harshness and unevenness as if the designer had boosted the upper frequencies to give the illusion of detail, but it's really just overemphasis and a lack of linearity that is pretty easy to detect. Lots of audiophiles love them. Speakers like those make me feel like I'm hearing a lecture *about* the music instead of the music itself. This was not so with the Aeris. It was actually a pleasure just to listen to a tone sweep from the bottom of human listening range to the top. Almost flawless - just one continuous sweep with no suck outs or over modulations, bumps or humps. All the detail, soundstaging and every other audiophile prerequisites without the unnatural, antiseptic character. The Aeris is a major accomplishment.

DSP

Here's where it might get dicey from some of you. The Aeris employ DSP or digital signal processing in a separate box in the form of a Xilica XP-4080. While you may have never of it, you've probably heard it because it is used in many professional recording studios. Bill calls it the "The Aeris Wavelaunch DSP" in the owner's manual. It is a 40-bit matrix (not 24 or 32 bit) processor allowing resolution exceeding that of recordings currently available. He says that it "provides for biamping, time synchronization and level matching of the ICE powered woofer section to the user's choice in upper range amplification". That's important. Remember, just the woofers are amplified so you must have your own amp to power everything else. The DSP allows for the matching, not only in volume levels, but in other critical areas such as timing and coloration. If you're worried about extra digital artifacts or phase issues, don't. There are none. In fact, by limiting bouncing off the

side walls, custom time alignment and EQ, the "Wavelauncher" as Bill calls it is very much a plus, not a minus.



He goes on to explain, "Modal adjustments at low frequencies can greatly improve the weight of a system while eliminating 'room boom'. Parametric amplitude correction assures that the left and right loudspeakers appear nearly identical to the listener. Since imaging information is derived from what can be very subtle left and right differences, small corrections can yield great benefits in restoring realism and depth."

I'll say. Here's how it works.

After he uncrated the speakers and used my handcart to ferry them to the listening room where he pretty much just plunked them down, slightly towed in. I always

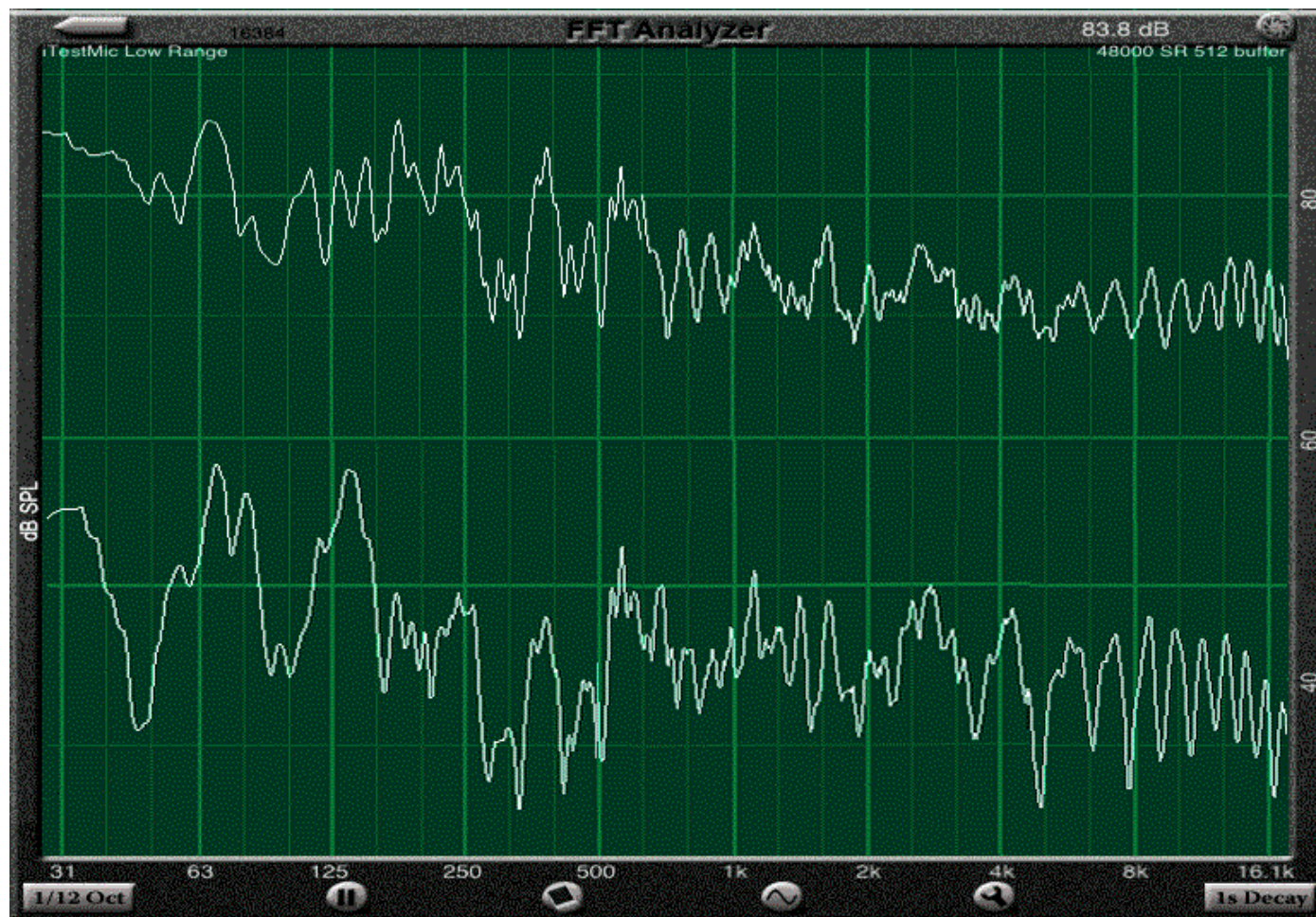


Bill works his magic

physically measure the speaker's distance from the back wall to make sure they are precisely the same distance and toed in exactly the same on both sides. Then I sit and listen, make appropriate changes, listen again and so on. Bill did none of that. He inserted the Wave Launcher between my Purity Audio Reference Preamp (tube) and my rather ancient Halcro MC-20 power amp. It's a 400 wpc Class D amp. The time of year was heading into summer in South Florida so I try to avoid large masses of heat producing tubes when possible. My Qsonix music server was serving into my Lampizator Level 4 DAC. It took some time to accomplish the setup because there are eight cables (all XLR) that plug into the wave box. Then we had to run power cables, one for each speaker since the built-in amps needed their own juice.

We set up a laboratory grade mic and plugged it into his laptop. For the next thirty minutes or so the room was filled with white noise as he dialed in the correct values for my room. Then we

started playing music. Things sounded pretty good. I helped Bill pack up and got him to the airport for the flight back to Indiana.



Here's a graph of the Aeris in my room before and after optimization. Bear in mind that these curves are a snapshot of a graph that continually changes and fluctuates because pink noise is random.

Bill: *The curves represent the acoustic sum of your left and right speaker at your seated position when fed correlated pink noise.*

The top curve demonstrates the advantage of my synchronization technique.

First I optimized the timing and pressure response of each speaker conventionally, but as you can see this still allows the room to dominate with resonant behavior (bottom curve).

Note that after applying the method, the low end response is significantly more linear and the transient response is audibly more natural, particularly in the bass decay.



As I said earlier, it took some time for the AERIS to settle in, but once they did it was as if a whole new universe opened up, a universe full of new possibilities and discoveries. Perhaps you can tell I'm very enthused about these speakers, but believe me, I'm holding back on my verbiage.

Bill said he thought the new AERIS might be a little better than the Whispers. He was wrong. As for me (and I know Linda agrees) the AERIS grabs the Whispers by the neck and lifts them off the ground with one hand and disembowels them with the other, tossing them effortlessly over their shoulder before grinding their heels in what little is left of their face. Was that too enthusiastic?

The wavelauncher as they call it is preset at the factory for optimum performance, but your dealer should be able to fine tune them to your particular room. Bill told me he has listened to every "room acoustic adjuster" on the market and found flaws in all of them. He believes his system is

the best there is. I have to tell you, after spending a lot of time with these fine instruments, I cannot disagree with him.

Let me give you an example of the kind of “detail” I heard. Bear in mind that I like to listen not only to the music, but the work of the engineer/producer as well. There’s a cut from a Celtic Woman CD where the Celtic Woman was singing as she played the harp. Yes, you could hear her fingernails on the strings and the wonderful resonance of the harp. Her voice was mesmerizing. But at one point at the end of a vocal phrase, she stops and there’s a moment of silence. The harp stops, too. There’s a couple of ways to “stop” or damp a harp, usually with your hands. But this time, for the first time, it was very obvious that the harp was silenced electronically by use of a fader. The engineer just pulled it down. I wasn’t even listening for that - it was just “there” as evident as can be. Little things like that happened a lot. Lyrics were easy to understand. Even Joe Cocker.

Let me try to drive this home one more time: Again, I never felt as if I was listening TO a speaker, it was completely the other way around; the speakers were singing, playing, strumming, thumping to me! Instead of me “taking” entertainment from them like you would a TV, it was they who were giving to me. They were doing all the work. Never for a moment did I want to lean forward or squint my eyes or whatever it takes to hear something a little better.
It was effortless listening.



The Legacy is simply the finest loudspeaker system I’ve had the privilege of hearing. I played thousands of different tracks through them and found not a missed nuance anywhere. Very few people have heard bass presented the way the Aeris can. You won’t hear me saying in any future reviews, “these speakers have limited low end, but I could live with it”. Nuh uh. Now that I’ve lived with low end so deep, so musical and so accurate, there’s no going back. For me, they have established a completely new level of musical enjoyment. And by the way, THIS pair isn’t going back either. They will be my true reference for some time. If you are looking for speakers anywhere near this price, especially higher, listen to these first in your room if you can. I heard them at two shows and was impressed, but the degree of difference in my room after they settled in was phenomenal.

There are lots of speakers that sound very hi-fi, an audiophile’s dream. These are something very different. If you know and appreciate what real music sounds like - any kind of music - you should love these.

Never, ever once did the Aeris make an unmusical sound. Perhaps most importantly, it’s the way they made us feel. They impart something that has been quietly lacking in every other speaker; call it satisfaction, call it fulfillment, consummation or just plain joy, but they never left us

wanting for the inspiration and delight that only real music can deliver. Yes, I said real. Do they reach the holy grail of sounding exactly like a symphony or a jazz quartet performing in your room? No. But what is noteworthy is that they create the very best illusion of real musicians playing in a real space that we have yet to hear. We never left a listening session without wishing we could linger longer, and bear in mind our listening sessions are usually four hours straight. Never a hint of fatigue, never allowing your mind to wander about whatever happened earlier in the day or contemplating the morrow. Total immersion. My mind was constantly filled with different musical ideas or questions - vivid Technicolor thoughts. I often found myself exclaiming "wow" or something equivalent out loud. Sometimes REAL loud. I never do that except at live concerts (whispered discreetly at classical venues of course) and I can count those times on one hand.

Speaking of live music, have you been to a classical concert lately? While my wife and I don't quite qualify for social security yet, we were the youngest people in the hall. I haven't seen that much gray hair since a pantyless Madonna spraddled out of a limousine. (I'll pause again for a moment to let that visual register...no, maybe not...)

Negatives? There is an external box to deal with and the accompanying cables. There's lots of little green lights that flash on it. Each speaker does need to be plugged in, but in doing so you get 1,000 watts per speaker of woofer heaven. They are rather heavy at 200 lbs each. They could do without the little green lights in the back of the speaker to spotlight the crossover.

We've had much more expensive speakers, but none as exhilarating as these. We look forward to weekend nights so we could listen to music, just like we look forward to going to live concerts. It was transportive, to make up a word. That's really what high-end stereo is supposed to do, isn't it? Transport us, give us the illusion of something real, of being there? The Aeris does.



The Legacy Aeris speaker system easily attains the elite level of our Maximum Mojo Award. It sets new standards at any price level for musical excellence.

Six-driver, 4.5-way loudspeaker with integral woofer amplification and DSP wavelauncher correction hardware

Tweeter: Dual Air Motion Transformer System (one 4" AMT tweeter, 1" AMT super-tweeter)

Midrange: 8" titanium-encrusted, accordion-edge

Midwoofer: 10" accordion-edge Subwoofer: Two 12" spun-aluminum diaphragm with cast frame, each with its own 500-watt ICE amp

Frequency response : 16Hz–30k (+/-2dB)

impedance: 4 ohms

Sensitivity: 95.4 dB

Cabinet dimensions: 14.5" x 58" x 16" Base dimensions: 19" x 1" x 15"

Weight: 200 lbs.



<http://www.legacyaudio.com>