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Keith
Jarrett
Talks!

Revel's New
Ultima2

18 Pages
of Music
Reviews



The Absolute
Sound
Cover Story

Revel Ultima
Salon2
Loudspeaker

*A Tour-de-Force
in Contemporary
Loudspeaker
Design*

by Robert Harley
Photography by Adam Voorhes

REVEL ULTIMA SALON2 LOUDSPEAKER

Most reports of a great-sounding demonstration at CES or CEDIA are followed by the qualifier "... for a show," as in: "The XYZ sounded fabulous... for a show." That's because it's rare to hear truly first-rate sound in a hotel room from a system that was set up the day before.

But the demonstration of Revel's new Ultima Salon2 at last year's CEDIA show was a different matter. Designer Kevin Voecks played the work-in-progress speaker at an off-site hotel for select members of the press, and made a deep impression upon all who heard it. The sound had a remarkable coherence and articulation, and a clarity that was breathtaking. I was so captivated that I wanted to just sit and listen to music for the rest of the afternoon. Clearly, something special was going on.

Revel's flagship is a complete rethinking of the original Salon launched with great fanfare ten years ago. The company was formed in 1995 by the consumer-electronics giant Harman International to compete in the upper-end loudspeaker market. With Harman's significant financial resources, sister-company JBL's engineering chops in driver design and manufacturing, Voeck's high-end design expertise, state-of-the-art acoustic-testing facilities, and a listening-test regimen developed by Dr. Floyd Toole (formerly of Canada's famed National Research Council), Revel was a serious endeavor.

But forget what you know about the sound of the original Salon and Studio; the Salon2 isn't an incremental improvement over its predecessor, it's a quantum leap in every performance parameter.

The Salon2 is a four-way, six-driver design in a tall, narrow enclosure. The cabinet is striking in its beauty, from the high-gloss mahogany finish, to the elaborately contoured baffle, to the rounded rear. The enclosure rests on a pedestal slightly larger than the box itself. The open-air pedestal gives the Salon2 a wider and more stable footprint, and also allows the speaker to be ported at the bottom.

The rounded rear panel—there is no "back" to the speaker—presents a design challenge: How to affix binding posts? Revel has solved this dilemma with a recessed area covered by a smoked Plexiglas door. Push open the rounded door to expose two sets of gold-plated input terminals. Loudspeaker cables can be routed through a channel in the area below the door for a very neat and tidy

look. The input-terminal plate contains two adjustments: one for tweaking the tweeter level, and another to adjust the bass balance to compensate for placement near boundaries. Even the grille attachment method is clever; slip the grilles over the baffle and invisible magnets hold it in place. This entire loudspeaker is beautifully engineered and executed at the highest level. (See sidebar for technical details.)

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Listening

The term “clarity” seems to have fallen out of favor in audio reviewing, perhaps because it is too simple and plain. But if I had to describe the Salon2 with a single word, it would be “clarity.” This loudspeaker has a quality that can be compared to a perfectly transparent and pure crystal—such is the low level of colorations and distortions.

The Salon2’s most salient characteristic (if you can call it a characteristic of the loudspeaker) is the quality that struck me at the CEDIA demo—a startling coherence and transparency that took a big step forward in seemingly removing the loudspeaker from the signal path. This impression was fostered not by what the loudspeaker was doing, but more precisely, by what the loudspeaker *wasn’t* doing—adding timbral colorations, introducing distortion, and otherwise making its presence known. Instruments had a palpability and vividness, both spatially and in tone color, without the slightest hint of forwardness. Timbres were remarkably lifelike and natural, and the overall presentation sounded like music rather than a disparate group of drivers in a box.

The Salon2’s treble reproduction was quite simply the best I’ve heard from a dynamic loudspeaker. The top end was highly detailed, but not in a brash or analytical way. Cymbals, for example, were portrayed with a delicacy and inner detail that must be heard to be believed. It was as though the metallic sheen overlaying the treble we’re so accustomed to hearing in reproduced music was stripped away to reveal the nuance and subtlety of the cymbal’s texture. The instrument went from sounding like a coarse burst of white noise to a highly complex and subtle rendering in which I could hear the overtones shimmering off the cymbal’s surface along with the finely filigreed decay. In addition to this extraordinary treble resolution, the top end was free from grain and glare. In the treble, the Salon2 had the fine resolution of transient detail of the best ribbons, the transparency of an electrostatic, and the dynamics and the impact of a dynamic driver.

This quality not only greatly reduced listening fatigue, but made the music come alive. I’ve always been fascinated by the way small objective changes in the signal can sometimes produce profound differences in musical perception. I was listening to



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one of my favorite albums, the first domestic release by the band Steps Ahead, and during bassist Eddy Gomez's solo on "Pools," drummer Peter Erskine plays a gentle figure on the ride cymbal that perfectly complements Gomez's improvisation. I've heard this record hundreds of times, but never fully appreciated Erskine's sympathetic playing at that particular moment. The Salon2 opened a new door of appreciation on this familiar recording. Significantly, *Steps Ahead* is a good, but not a great recording, yet the Salon2 seemed to tease out of it every last bit of musical detail. On a great recording such as *New York Time* (Christian McBride, Javon Jackson, Jimmy Cobb, and Cedar Walton) in SACD on Chesky, the Salon2 was nothing short of transcendental. You simply sit down in front of the Salon2 and immediately forget you're listening to anything but the musicians.

The Salon2's coherence is breathtaking; it sounds very much like a full-range electrostatic rather than a complex four-way, six-driver cone loudspeaker—that is, there's no sense of discontinuity between drivers, just a seamless musical fabric from top to bottom. The treble's integration with the midrange is by far the best I've heard from any multi-way loudspeaker. I never heard the tweeter as a separate element; rather, the treble naturally and organically seemed like an extension of the midrange. Often, dome tweeters call attention to themselves by fostering the impression of the treble riding on top of the music, somehow detached and not quite part of the musical fabric. The Salon2 overcomes this not just with an extremely clean and grain-free top-end, as described earlier, but also with its perfect integration into the rest of the spectrum. The musical consequences of this achievement cannot be overstated; the Salon2 sounds more like live music and less like an electro-mechanical recreation.

Bottom-end extension was outstanding—the Salon2 pressurized my listening room with the organ pedal tones on Rutter's *Requiem* (Reference Recordings). The bass didn't have the visceral impact and slam of the Wilson MAXX 2 (what does?), but was nonetheless fully satisfying. The specified -3dB point is 23Hz, which is remarkable for an enclosure of this modest footprint. Even on bass-heavy music at high listening levels, I never heard the port as a separate sound source.

Soundstaging was absolutely sensational. When fed from a first-rate front end playing a recording with abundant space, the Salon2 disappeared into the soundstage and floated images

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Design

The Salon2 is the result of a four-year development effort by engineers from many different disciplines. The loudspeaker was built from the ground up with drivers designed in-house specifically for the Salon2 and other models in the Ultima2 family.

The system employs six drivers in a four-way configuration, with three 8" woofers handling frequencies below 150Hz. The single 6.5" mid/bass driver reaches up to 575Hz, where it crosses over to a 4" midrange. The tweeter is crossed over at 2.3kHz. All slopes are steep fourth-order (24dB/octave). The combination of such steep crossover slopes and the four-way design means that each driver is asked to reproduce a comparatively narrow frequency band. This allows each driver to perform optimally, and avoids operating the driver near the titanium cone's first break-up mode.

Rather than mount all the crossover components on a single board, Revel distributes individual "filter boards" throughout the cabinet. This eliminates the possibility of electro-magnetic interaction between, for example, the woofer and midrange filters. The crossovers are realized with all air-core inductors and polypropylene capacitors. The boards on which the crossover components are mounted are purely to secure them physically; all wiring is done by hand with point-to-point wiring, to avoid the distortions introduced by printed circuit boards.

The 8", 6.5", and 4" drivers are inverted domes made from titanium, chosen for its light weight and high stiffness. The 2" voice coils (1.5" in the 4" midrange) are wound with a flat ribbon wire for greater power-handling and less loss. The voice coils are driven by a unique dual neodymium magnet structure that reportedly concentrates the magnetic field in the gap for greater output with less magnet area. Revel conducted extensive research into sources of distortion in drivers, from the motor system to the cone material, to the surround shape and composition. Much effort was put into making the drivers non-resonant over the band in which they are asked to operate. The company's white paper goes into extensive detail about these distortion mechanisms and the design innovations incorporated in the drivers. It's worth noting that Revel had at its disposal an entire staff of driver designers (a resource shared by Harman Consumer Group companies), along with driver-manufacturing facilities, in creating this new series of transducers.



Each driver is measured before assembly and its response is recorded by serial number and kept on file. If a driver ever needs replacing, Revel can supply one with identical characteristics.

The tweeter is a beryllium dome inset into a slightly concave plate. This concave structure acts a waveguide and serves three functions. First, the waveguide increases the tweeter's sensitivity by more efficiently coupling it with the air, just as horn loading a driver increases sensitivity. This means less power needs to be delivered to the tweeter, increasing its dynamic range and maximum output. Second, the waveguide controls the tweeter dispersion so that it matches the midrange driver's dispersion at the crossover point. Third, the crossover point can be lower. (Kevin Voecks more fully explains the tweeter waveguide in the accompanying interview.)

The shape and construction of the cabinet are also a radical departure from the first-generation Salon. The sides and "back" are formed from a single sheet of nine-layer MDF. An adhesive is pressed between each of the nine 2.5mm layers (nearly 1" total thickness) and the structure is put into a press overnight to create the cabinet's final shape. The rounded shape is stronger than a box of the same material. The front baffle is made from 2.5" MDF and cut into the unique contoured shape. This shape is carefully engineered to reduce diffraction, a re-radiation of acoustic energy caused by a discontinuity in the baffle surface. Diffraction creates narrow peaks and dips in the frequency response as the direct and reflected energy combine constructively and destructively.

The rest of the enclosure can be thought of as an extension of the baffle shape, presenting the ideal environment for the drivers. Enclosure shape affects the loudspeaker's power response, or the total energy driving the room. Revel believes power response (and off-axis response in general) has a profound effect on a loudspeaker's sound. That's why Revel specifies frequency response in terms of "in-room response" (29Hz-18kHz +/-0.5dB), not the frequency response measured on-axis.

A set of drivers and crossover filter boards are put together and measured in an anechoic chamber (before installation into a finished cabinet). The technician then tweaks the filter boards so that the response of the system is within 0.5dB of the reference. This technique compensates for inevitable slight variations in the drivers and crossover components, and assures that the final product performs identically to the reference. In addition, identical response from a left/right pair is crucial to imaging; slight response differences result in diffuse imaging, along with changes in imaging with pitch.

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as well as any speaker I've had in my home (even the Avalon Eidolon, an overachiever in this area). On the Mozart Piano Concerto No. 21 on Reference Recordings, I could hear the reflections from the walls that precisely described the acoustic. The piano was tremendously focused, and seemed to hang in transparent space, bathed in the expansive acoustic. I attribute the Salon2's outstanding spatial presentation to its fine resolution of the micro-detail that contains the cues we use to generate the impression of size and distance. Such cues are fragile, which is why we hear such a variance in spatial presentations between loudspeakers and electronics.

Concomitant with the expansive soundstage, the Salon2 presented images within the space as completely separate from each other with no sense of congealing or flattening. In addition to sounding more like what we hear in real life, this separation better conveys musical meaning because it's easier to hear the relationships between different musical lines.

Here's an analogy with recordings to illustrate this point. I've been listening to Steely Dan's *Aja* and *Gaucho* lately, prompted by the 30th anniversary re-release of *Aja* and the angry reader letters I've received from fans of the record who disagreed with Wayne Garcia's review in Issue 175. Those two records are amazing in their transparency, clarity, separation of instruments, perfect mix of disparate elements, and layering of detail. Every instrument has its own space in the mix that allows it to be heard as a separate entity, yet still sound connected to the whole. These two records stand out as models, and make most other records in the genre sound flat, congested, thick, and congealed. The Salon2 makes conventional recordings sound more like *Aja* and *Gaucho*.

Like a chameleon, the Salon2's sound changed with changes in source components and amplification. The Salon2's extremely low coloration and distortion were highly revealing of differences in the signal driving it. Toward the end of the auditioning I made a couple of major upgrades to the system, including the Esoteric G-0Rb rubidium clock and the new Rex preamp from Balanced Audio Technology. The Salon2's transparency and lack of a signature easily resolved exactly what these components were doing.

The expression "ruthlessly revealing" is often used in audio reviewing pejoratively to describe a loudspeaker that is highly detailed and resolving, but not musically involving. Such products seem to emphasize flaws in certain recordings (particularly a bright and hard midrange and treble), making them unsatisfying as vehicles for exploring music. The Salon2 was one of the highest-resolution loudspeakers I've had in my home, yet, paradoxically, was thoroughly enjoyable on less-than-stellar recordings. Recordings that have sounded hard and bright on other speakers didn't seem so hard and bright on the Salon2s, but not because of any euphonic coloration. It's possible that the treble glare of most dome tweeters exacerbates the flaws in mediocre recordings.

Finally, I should mention that the Salon2 requires superlative electronics and front-end components to achieve the level of performance I've described. It is so resolving that the limitations of upstream components set the upper boundary of sound quality. You should also choose a solid amplifier with good current delivery; the Salon2 is a bit of a challenge to drive. It has a rather low sensitivity and an impedance that dips to 3.7 ohms. On several occasions, the thermal protection system

in a 200Wpc into 8 ohms (400Wpc into 4 ohms) solid-state power amplifier engaged at high (but not excessive) playback levels after several hours of continuous listening.

Conclusion

The Revel Salon2 is a significant achievement in contemporary loudspeaker design. Its advanced engineering translated directly to a profoundly compelling listening experience. This loudspeaker sets a new standard in low coloration, lack of "signature," seamless coherence, and truthfulness to the source, in my experience. It's a bonus that this level of performance comes in such an attractive package with a relatively small footprint. But the real icing on the cake is the Salon2's price. Although \$22,000 is a big chunk of money for a pair of loudspeakers, that's a relative bargain in today's world for a truly world-class loudspeaker. And the Salon2 is without question a world-class loudspeaker. **TAS**

SPECS & PRICING

Driver complement: **Three 8" titanium woofers, one titanium 6.5" mid-woofer, one 4" titanium midrange, one 1" beryllium tweeter**
Loading: **Reflex**
Frequency response: **26Hz-20kHz +/-1.0 dB; 23Hz-45kHz -3dB**
In-room response relative to target response: **29Hz-18kHz +/-0.5dB**
Low-frequency extension: **-10dB at 17Hz; -6dB at 20Hz; -3dB at 23Hz**
Sensitivity: **86.4dB (2.83V at 1m)**
Impedance: **6 ohms nominal, 3.7 ohms minimum (at 90Hz)**
Crossover: **Fourth-order at 150Hz, 575Hz, 2.3kHz**
Finishes: **Gloss mahogany, gloss black**
Dimensions: **14" x 53.25" x 23"**
Weight: **178 lbs. each (shipping)**
Price: **\$21,998 per pair**

REVEL
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Bedford, MA 01730
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ASSOCIATED EQUIPMENT

Digital source: **Esoteric P-03 transport, Esoteric D-03 DAC, Esoteric G-0Rb rubidium clock, Cambridge Audio Azur 840C CD player.**
Analog source: **Basis 2800 Signature turntable with Calibrator Base, Syncho-Wave power supply, and Basis Vector 4 tonearm, Transfiguration Orpheus cartridge.**
Preamplification: **Aesthetix Rhea phonostage, Mark Levinson No.326S lineage, Balanced Audio Technology Rex lineage**
Power amplification: **Mark Levinson No.432, Audio Research Reference 110.**
Cabling: **MIT Oracle MA (loudspeaker), Shunyata Antares and AudioQuest WEL Signature (interconnects)**
Power conditioning: **Shunyata V-Ray and Hydra-8 conditioners, Shunyata Anaconda and Python AC cables; three separate dedicated AC lines in listening room with isolated ground**
Room: **Custom built; acoustic design and computer modeling by Norm Varney of AV Room Service.**

Cost-no-object Loudspeaker of the Year



Revel Ultima Salon2

\$21,998

Created with extraordinary attention to detail, the new Salon2 is a *tour-de-force* in loudspeaker design. Every component was purpose-built for the Ultima2 line, including its high-tech inverted titanium dome drivers, waveguide-loaded beryllium tweeter, and a cabinet that is as functional as it is beautiful. Forget what you know about the original Salon; this is a completely different animal. The tall, slim four-way delivers a tremendous sense of clarity and see-through transparency that, in RH's experience, are of reference quality. Top-to-bottom coherence is breathtaking; the Salon2 sounds less like a collection of disparate drivers and more like a continuous musical whole, with deep, satisfying bass extension, a large, precisely defined soundstage, and the ability to resolve even the finest details in a recording. Many mega-buck loudspeakers don't approach the Salon2's neutrality or musicality.

Reviewed by RH in this issue