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BRINGING THE INDOORS OUTSIDE

Luxury Home Builder Provides a Full Experience That Extends Beyond the Walls of the House



Review:

Stealth Acoustics
LineaRadiance 430
Invisible Speakers

Stealth Acoustics

LineaRadiance 430 Invisible Speakers

It was the waning hours on the final day of CEDIA Expo 2024 and a PR friend was taking me around for my final booth visits of the show, which led me to run into Chris Pruet, the social media marketing manager at Stealth Acoustics.

Of course, I was aware of Stealth. I mean, how could you *not* be? What with their over-the-top, massive outdoor LED video systems, including the Extreme that can tuck a 190-inch microLED display into an enclosure that resides completely underground when not in use, or the “Transformer” that typically spends the entire Expo slowly unfolding out of its container like a butterfly stretching its newfound 120-inch wings, before folding back inside itself to tuck completely back into its housing. Cool stuff, to be sure, but also a little too pricey for the kinds of installs most of us are doing.

What Pruet showed me that really caught my interest was the eighth generation of the company’s invisible speakers, the LineaRadiance 430 (L-RAD 430). While the Expo floor isn’t the best place to catch an audio demo, the sound emanating from the speakers completely hidden inside drywall and behind layers of paint was incredibly impressive.

Invisible speakers are a category that has always interested me, and one that is seeing growth from other manufacturers such as Sonance, JBL, and Origin Acoustics. But it’s also one that I’d never reviewed, installed, or really had much experience with.

But how to review such an animal? Pruet said he had me covered. He had demo units of the company’s brand-new models built into pre-fabricated 2x4 walls that would give me the full listening experience without needing to do an actual install. And to complete the package, he also sent along Stealth’s SA2400-MKII high-



current amplifier with DSP designed to work with the company’s full line of invisible speakers. Done and done!

What’s New

Beyond the fact that Stealth has obviously been there, done-that with this being its eighth-generation product, I loved that the company was born out of Dimensional Communications,

a premier systems integration company founded in 1972 and based in Mount Vernon, Wash.

How often have you seen something missing in our industry that you know would be a killer solution? A better mount, a better bracket, a better design, a better implementation... Back in 2001, Dimensional founder Paul Hagman saw that the options available for “invisible speakers” didn’t meet his expectations, so he set out to

By John Sciacca

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KUDOS

Shockingly good, full-range sound from a truly invisible speaker; detailed and articulate high frequencies

CONCERNS

Finding a great/reliable "Mud Buddy"

PRODUCT SPECS

- Invisible, in-wall/ceiling, three-way, full-range speakers with integrated backbox
- Frequency response 35 Hz–20 kHz
- Sensitivity 83 dB (1 watt/1 meter)
- 170-degree vertical and horizontal dispersion
- Includes two 8-inch low-frequency drivers, 1-1/8-inch neodymium mid driver, and 1-inch neodymium high-frequency driver
- Two independent, self-receiving protection circuits
- Includes mounting screws and shims
- 20-year warranty includes reimbursement for wall repair costs
- Dimensions and Weight: 15.875 x 29.875 x 3.25 inches (HxWxD); Weight 26 pounds

develop a full-range, high-performing invisible solution and started Stealth Acoustics. After two years of R&D, the company brought its first speakers to CEDIA Expo in 2003 and has been steadily refining and improving the design ever since, which brings us to the LineaRadiance.

There are currently two models available in the LineaRadiance line — the L-RAD 430 reviewed here and a smaller L-RAD 116. However, the company has plans for a full family of speaker and subwoofer offerings, with five speakers planned in the lineup. The additional models are expected to be released around the time you are reading this.

There are numerous upgrades and improvements in this eighth-gen lineup, including new transducer/exciter driver designs, increased efficiency and power handling, re-voiced crossovers, larger diaphragm surface areas, and a new woofer

mount for increased internal air volume.

According to Pruet, "Each generation represents new technology, crossovers, dampening, etc. that increased the overall performance with each upgrade. Now with our eighth-gen product, we're seeing serious conversion from 'traditional' speakers to the 'invisible' category, even in performance zones."

Beyond performance improvements, the eighth-gen products also come with acoustically tuned/injection-molded backboxes at no additional cost, and the front face has a new beveled finish to ensure easier wall applications and a new paper finish for better material adhesion. Lastly, all eighth-gen products come with a 20-year warranty, up from the previous 5-year warranty.

The L-RAD 430 is a brand new, true 3-way design and features dual 8-inch woofers, a 1 1/8-inch neodymium mid-frequency driver, and a 1-inch neodymium high-frequency driver, with a rated frequency response of 35 Hz–20 kHz. The speaker has a total radiating surface of 325 square inches and has high-frequency dispersion rated at 170 degrees, both vertically and horizontally. The L-RAD 430 is currently the flagship in Stealth's line, and they retail for \$3000 a pair.

While it has a rated 8-ohm impedance and can be technically driven by any amplifier or home theater AVR, the speakers are not very sensitive at 83 dB (1 watt/1 meter) and take a robust amplifier to drive to their potential. Stealth suggests feeding them at least 150 watts and obviously recommends using its own SA2400-MKII, which can output 310 watts/channel. At \$1500 MSRP, the SA4200 amp is an easy add-on to the system and can drive up to four speakers with 450 watts/channel at 4 ohms. Pruet also mentioned that Stealth is an integration partner with AudioControl and LEA Professional, and both have the full line of Stealth DSPs available in their respective amplifier models.

I Must Not Fear...

"Fear is the mind-killer. Fear is the little death that brings total obliteration. I will face my fear. Where the fear has gone there will be nothing." —Frank Hebert, *Dune*

As I mentioned at the outset, I have very little experience with the invisible speaker category. The closest I'd ever come was a review of the Revolution Acoustics SSP6 Multiducer back in 2014, which was a product that mounted onto the drywall and delivered audio by exciting the surface. But, if you boil it down to why I've never sold or installed any invisible speakers like the

Stealth, it really comes down to one word: *fear*.

I feared the installation. I feared the care required for the drywall finish. I feared the speakers wouldn't look right when installed or sound good enough for the premium price. I feared there would be some post-install problem.

Basically, I feared the unknown.

In our line of work, it's so much easier to just stick with what you know, what works, that I never felt a need to venture out of that comfort zone. And I imagine some of you reading this have been holding off on selling invisible speakers for many of the same reasons.

I shared these fears with Pruet to get his take.

"This happens to be my favorite discussion to have," he said. "I often reflect back to my days in the lighting category and working with Lutron dealers. When getting a guy into the lighting category, it was always a discussion of 'I'm NOT an electrician.' Well, what do these guys do to be successful? They hire a 'sparky buddy,' an electrician who will work for him and install the Lutron switches and panels exactly the way the AV integrator wants. This is no different in the invisible speaker category. Matter of fact, invisible speakers and lighting should be considered the same. They are the most custom and profitable options you can sell to your clients. So, I tell guys, 'Get your own 'Mud Buddy' and allow him to do his work, and he'll make you a bazillion dollars!'"

When the LRAD-430s are really jamming, you can definitely feel a lot of bass energy coming off the back of the enclosure, so I asked Pruet about the possibility of these speakers popping a screw or seam in the finished drywall.

"That is a common concern," Pruet agreed, "but it has never happened. When installed correctly, they only put mud around the frame [of the speaker], but not on the speaker itself. We suggest no more than 2mm of paint/wallpaper to be applied to the face/diaphragm of the speaker. This will ensure maximum performance without cracking."

Speaking for *all* invisible speakers, the one instance where "cracking" can happen is if hot mud/quick-set joint compound is used, so Stealth highly suggests *not* using hot mud when invisible speakers are being installed, rather using typical, 24-hour air-dry mud.

Regarding the 20-year warranty, that's all well and good, but if you had to go and pull/cut a bad speaker out of the wall, the cost of the speaker itself is probably going to be the least of your concerns. Here, Stealth goes the extra mile to stand behind its product. If the speaker is deemed faulty in those 20 years, the

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company will pay the dealer up to \$2,000 for wall repair to cover removal and reinstallation of a new speaker, which should definitely help to alleviate some of the post-installation fear. To help prevent any speaker damage from happening, each speaker has two independent protection circuits, separate for the high/mid and low-frequency sections, that will automatically reset if they are overdriven.

Installation

Chris sent my review speakers in pre-fabricated 2x4 enclosures, so my installation was limited to just unboxing everything, running some speaker wiring from the amp to each speaker, and then connecting source components. Obviously, a real-world installation would be a lot more involved.

For this, Stealth has a wealth of “how to” resources available on its website, including videos, documents covering installation, acoustics isolation rules, basic finish tips, joint compound installation, wallpaper finish, and step-by-step walk-throughs.

According to the company, “Installing a Stealth Acoustics Invisible Speaker is as simple as fitting a drywall patch! The speakers are built on a solid frame and baffle board that contain the traditional drivers, exciters, and crossovers found in most speakers. This portion mounts directly to the structural framing. The face of the speaker is smooth and durable and is designed to finish in a similar fashion to the wallboard surrounding it.”

While the speakers are designed to install in standard 2x4 walls with 0.5-inch drywall, they are equally at home in 2x6 walls, steel walls, if the sheetrock is thicker, or if plaster finish is being used. The key is that there can be no more than 1/16-inch of *all* materials — joint compound, primer, paint, plaster, wallpaper, etc. — over the face of the finished speaker, as that will adversely affect the performance. (If you’re dealing with a wall that will have spray foam insulation, Stealth recommends using a metal backbox for an easier installation.)

The opening where the speakers install does need to be framed out on all four sides, meaning that blocking will likely need to be installed above and below the speaker to create a pocket for it to mount into and securely screw to on all four sides.

Like the pre-installation brackets or frames you are probably currently using for your in-wall/ceiling speakers, Stealth offers a

PlaceSaver, which eliminates the need to cut in holes after the sheetrock has been installed, and ensures you have the proper framing around each speaker’s perimeter.

Watching the installation videos, the finishing process looks relatively straightforward, albeit time-consuming. Stealth recommends seam tape followed by at least three light applications of joint compound, allowing 24 hours between each application for complete drying, with sanding between each coat. The company also suggest that all unfinished wallboards and speakers be primed with latex-based primer-sealer before painting. Scheduling this and how much your “Mud Buddy” will charge for three or more visits to a job site is something you’ll need to factor in. Or get your heart right with you or someone on your staff using a drywall trowel.

Because these speakers produce a fairly prodigious bass output, sound transmission to adjacent rooms could be a concern. Pruet suggested using backboxes, but also installing layers of Dynamat/Hushmat behind the speakers in areas that are most critical for sound isolation.

Usually, when laying out architectural speakers, we’re concerned with getting them to line up with ceiling lights or vents, or positioning them where they will look aesthetically pleasing after the installation. But, when the Stealth speakers are correctly installed, they will be totally invisible after they’re in and finished, so locating them becomes far less about where they’ll look good and all about where they’ll sound the best. For critical listening, the front wall in a standard left/right array is a great choice, however, due to the speakers’ ultra-wide, 170-degree dispersion pattern, they can really fill a room if placed in a ceiling. They would also be fantastic for use as surround and height channels in a home theater install.

The SA2400 amplifier is a 2U rack-mountable, fully featured unit that offers a ton of flexibility for integrating with a variety of systems. It offers RCA unbalanced, XLR balanced, and speaker-level inputs and outputs, as well as a Toslink optical input. There is also a 12v trigger in/out, ground lift, and detachable power cord. An array of front-panel buttons is available for adjusting volume and navigating the menus via the LED display.

The amp is programmable using the free Stealth Signal Management System

(SSMS) PC software, which offers 11 bands of full Parametric EQ, a full limiter stage, high- and low-pass filters with selectable slopes, and more, along with access to 10 different DSP presets optimized for a variety of Stealth speakers. The software is easy and intuitive to use, and a computer connects to the amp via an included USB cable to make and download any changes.

Performance

I had the speakers shipped to my CI showroom so I could spend some time with them during the day. I brought them into our large theater, set them next to some Monitor Audio Silver Series towers, connected the amp, and used a Yamaha single-disc CD player to fire them up. The disc already in the player was Cassandra Wilson's *Blue Light 'Til Dawn*, which seemed a great place to start.

The disc's second track, "Come On In My Kitchen," starts with some acoustic guitar before the drum beat and cymbal strikes kick in, and it was clear that the sound I'd heard at CEDIA wasn't a fluke. The bass has weight and depth, and the cymbals have a real shimmer. At Pruet's suggestion, I spaced the speakers slightly wider apart than I normally would, and they really create a huge wall of sound while still providing a nice phantom center and a clear sense of stereo separation.

The disc's third track, "Tell Me You'll Wait For Me," begins with Wilson singing *a cappella*, and then some deep bass and brush strokes, and the LRAD-430's delivered texture to the bass strings as well as the delicacy of the brushes.

Popping in Miles Davis' seminal *Kind of Blue*, again what impressed me was the articulation of the high frequencies, especially on the slower tracks like "Flamenco Sketches," both the original and alternate takes (tracks 5 and 6). Track five starts with Miles' horn blowing gently into the room, with Jimmy Cobb's delicate brushwork restrained but clear in the background, while track six begins with some heavier plucks on the bass and a brasher intro by Miles.

After a time, I brought the speakers home to my listening room and connected them to the Marantz CD50n, which gave access to streaming via HEOS. I also connected the Marantz Model 50 amplifier to the speakers to see how they'd sound with a "regular" amp.

While the Model 50 did its best, at only 70 watts/channel, I could tell it just didn't have the chutzpah to drive the low end of the towers, and under-powered, they sounded a bit thin. I reconnected the SA2400 and used the SSMS



software to check how Stealth's DSP affected the sound. The pre-loaded DSP adds some parametric EQ that drops bass by 3 dB at 100 and 524 Hz, and toggling this on/off, it was apparent that the trims helped with mid-bass articulation. One note regarding the amp: It does have an 8-speed automatic fan to keep it cool, but it is fairly audible in a quiet listening room, so locate it accordingly.

Listening to Hans Zimmer's "Beginnings Are Such Delicate Times" from the *Dune 2* soundtrack, the track's opening big notes showed that while the speakers definitely have low-end capabilities, they can't plumb and produce the deepest notes, so critical full-range listening would benefit from adding a subwoofer. (Though, to be fair, I'd say that about nearly all speakers.) However, what I really loved was the spaciousness and width of the presentation. The swirling sounds that travel back and forth across the front channels reached far behind the physical cabinets of the speakers and well into the sides of my room.

Repeatedly, what most impressed me with the sound from the LRAD-430s was the high-frequency reproduction, which is never harsh and always clear. Granted, it's not the same detail as what I'm getting from the SVS Ultra Evolution diamond-coated tweeter, but the panels present the sonic image wonderfully.

It isn't long before you stop thinking of these as "invisible speakers" performing some magic trick by making audio appear seemingly out of thin air and just start thinking of them as speakers. Whether I was throwing bombastic

content like *The Crystal Method* or *Daft Punk* at them, or more "refined" content like the audiophile-standby female vocals of *Norah Jones*, *Diana Krall*, and *Rebecca Pidgeon*, the LRAD-430s just did their job of reproducing the music.

If there are any areas where they lacked performance, I'd say the midrange isn't as full sounding, and some upper-bass signals can get crowded, certainly what that pre-loaded DSP is helping to address. Also, they don't have much presence at low volumes as the bass info doesn't "kick in" until given a bit of gas. And if pushed to extreme volumes, especially with bass-heavy content, they can start to sound a bit strained.

However, I think if you walked the vast majority of people into a room with these playing, they would be gobsmacked by the amount and quality of sound coming from nowhere and everywhere!

At just over \$1000/pair for Stealth Acoustics' entry offering — with an incredibly generous dealer demo discount to boot — properly installing some of these in your showroom will definitely open up new opportunities for you. In fact, you could take a page from the old Bose playbook and have these mounted on a wall behind some tower speakers, and convince most people they were listening to towers, not invisible speakers. The results will likely have you closing higher sales on your distributed audio systems, and putting better speakers into more rooms. **Res**