

Equipment Report

JL Audio Fathom IWSv2-SYS-213 In-Wall Subwoofer System

Wolf in Sheep's Clothing

Robert Harley

When an audio journalist asked loudspeaker designer Richard Vandersteen if his company would make an in-wall speaker, Richard replied, "I'll make an in-wall speaker when Steinway makes an in-wall piano."

That brilliant retort perfectly sums up the high-end's antipathy toward in-wall speakers. In-walls have a much-deserved reputation for providing substandard sound quality—triumphs of convenience over performance that are antithetical to high-end values.

So why did I choose in-wall subwoofers for my new home-theater room? Because the in-wall subwoofer is made by JL Audio, a company that in my experience has never introduced a product that was less than stellar. The company holds 43 patents (with six more pending) related to subwoofers (and amplifiers) and is seriously geeky on the subject. Moreover, JL Audio's new in-wall subwoofers are decidedly different in design than conventional in-walls—the company appears to have applied its formidable technical chops to the challenge. Finally, my theater room is quite small (in contrast to the separate music listening room described in Issue 294) and in-wall subwoofers freed up scarce floor space. Perhaps in-wall speakers, done right, have a place in a discriminating listener's system. We'll find out.

I went for the Fathom IWSv2-SYS-213, a moniker that describes its configuration (in-wall system, version two, and two 13.5" woofers in separate enclosures) yet doesn't quite roll off the tongue. I'll call it the IWS in this review, with the understanding that it refers to the 13.5"-woofer/dual-enclosure version. A single-woofer model is also available, but dual woofers in different locations in the room provide smoother bass because each one drives the room's resonant modes differently. Two woofers also reduce by half the demands placed on each driver (and on the amplifier) for a given output level, expanding the system's dynamic range and ability to deliver bass impact without strain. The company also makes a version with an 8" woofer for about half the price (\$2300 vs. \$4900 for the single-woofer version, \$3500 vs. \$7800 for dual-woofer models).

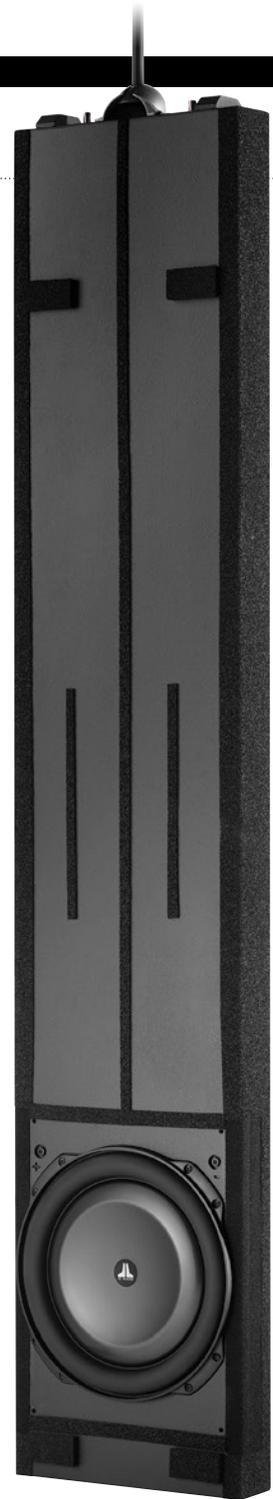
JL Audio's solution to the challenge of making a good-sounding in-wall subwoofer starts with a large and solidly braced enclosure along with a novel mounting method for that enclosure. Most in-wall speaker enclosures attach right to the studs, a recipe for amplifying cabinet vibration by coupling the box to the wall structure. Rather than use this compromised industry-standard method, JL suspends the enclosure inside the stud bay from a

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vertical rod that attaches to a horizontal bar. This clever single-point ball-and-socket arrangement decouples the enclosure from the wall. Spacers and padding around the enclosure, along with a gasket that fits on the stud edges, give the enclosure a snug fit inside the stud bay and reduce the chance of rattles.

The IWS is installed before the drywall goes up, leaving its entire large enclosure buried inside the wall, except for a 16.5" x 16" opening to access the driver-mounting hole. The driver is shipped separately from the enclosure, and is installed toward the end of construction. The opening is covered by a protective panel that is discarded when the driver is installed. The panel also serves as a template for cutting the surrounding drywall. A sturdy metal grille covers the driver, yet attaches to the wall rather than to the enclosure, again to keep the enclosure decoupled from the wall. Three different grille depths accommodate different wall thicknesses. I painted the grilles my wall color.

The sealed enclosure measures 13.75" wide and either



70" or 55" tall. Five enclosure sizes are available depending on the stud depth. I opted for the 5.5"-deep enclosure as I have 2x6 exterior walls. The three narrower enclosures designed for 2x4 walls are taller than the two for 2x6 walls so that both provide approximately the same interior volume and driver loading. The enclosures are made from CNC-cut birch

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Specifications

Driver: 13.5"

Loading: Sealed

Frequency response: 26Hz–101Hz, +/-1.5dB; -3dB at 25Hz and 112Hz

Amplifier power: 2000W RMS (short-term)

Amplifier inputs: Stereo or mono on RCA and XLR jacks

Speaker outputs: Neutrik SpeakOn

Amplifier controls: Low-pass filter on/off, 12dB or 24dB per octave; low-pass filter cutoff frequency, 30Hz–130Hz; polarity, 0 or 180 degrees; variable phase from 0 to 270 degrees; ELF trim variable from -12dB to +3dB at 23Hz

Enclosure dimensions: 13.75" x 55" x 4.7" (for 2x6 stud bays); 13.75" x 55" x 2.9" (for 2x4 stud bays)

Grille and wall opening dimensions: 17.64" x 17.14" (grille); 16.5" x 16" (wall opening)

Amplifier dimensions: 17.4" x 3.5" x 17.9"

Amplifier weight: 43 lbs.

Grille finish: White (paintable)

JL AUDIO, INC.

10369 North Commerce Pkwy
Miramar, FL 33025-3962
(954) 443-1100
jlaudio.com

plywood, a much stiffer and less resonance-prone material than MDF.

The 13.5" woofer that fits in the enclosure is a home-theater version of JL's ultra-thin TW5 platform, a woofer that has been successfully used in a range of JL products. This woofer bristles with technical innovation, from the magnet structure, to the cone material, to the surround and just about every other aspect of the design. For this new in-wall driver, JL developed a mechanical structure to provide greater cone excursion within the space limitations of the shallow woofer, which it calls Concentric Tube Suspension. This new woofer, when mounted in its in-wall enclosure, is specified as extending

flat to 25Hz (-3dB).

The subwoofer is powered by one of two available freestanding amplifiers that go in your equipment rack. The amplifier model is dictated by whether it is driving one or two woofers, and whether the amp is driving the enclosure that fits in a 2x6 wall or a 2x4 wall. The single-woofer amplifier delivers 1000W, and the dual-woofer model 2000W. Matching the amplifier to the enclosure type is necessary because the equalization curves built into the amplifiers are specific to the enclosure.

All the amplifiers' front panels will look familiar to anyone who has set up a freestanding JL Audio subwoofer; they are laid out identically to the panel of a Fathom f112 or f113. Ad-

justments include: a selectable low-pass filter at 12dB or 24dB per octave (or no filter); a continuously variable crossover frequency knob; an ELF trim (Extremely Low Frequency) knob with a boost of up to +3dB or a cut of up to -12dB at 23Hz that is useful in taming room overload; a continuously variable phase control; a polarity switch; a master level control; and controls for operating JL Audio's Digital Automatic Room Optimization (DARO) program. As described in my review of JL's Fathom f113 in Issue 283, DARO measures the response of the subwoofer in your room at your listening location and employs 18 one-sixth-octave digital filters to flatten frequency response. DARO is extremely effective in removing room-induced peaks and thereby banishing the dreaded bass bloat and overhang so common in subwoofers capable of prodigious output. Calibrating the IWS with DARO is simple and fast: Position the supplied measurement microphone at the listening seat, press one button on the amplifier to start the test-tone sequence, and the system automatically does the rest. The difference in sound quality before and after DARO is night and day. (See my f113 review for more detail on DARO.)

The amplifier's rear panel offers balanced or unbalanced inputs in either stereo or mono, and subwoofer outputs on Neutrik SpeakON connectors. In a system with multiple amplifiers, one of those amps can be designated as "master" and will serve as the single control point for every other amp.

The small theater system in which the IWS was installed measures 13' x 16' with a 9' ceiling. The two subwoofer enclosures were mounted on the wall behind my 65" Panasonic plasma panel at different distances from the adjacent sidewalls. The rest of the system includes the outstanding Anthem MRX 1120 receiver with Dolby Atmos, a pair of PSB T3 speakers in the left and right positions, a PSB Imagine C3 center speaker on a short stand, PSB CS 650 in-ceiling speakers for Dolby Atmos, and four Atlantic Technologies IW-155 surround speakers mounted in the sidewalls and behind the listening seat.

It was with much anticipation that I fired up the system for the first time, many months after installing the IWS enclosures inside the stud bays during my home's construction. I had expected good things from the IWS but was floored by the quantity and quality of the bass. Most importantly, the IWS gave absolutely no indication that the subwoofers were mounted inside the wall—they sounded like a pair of very-high-quality freestanding subs. I heard no rattling of their structures, no vibrations, and no extraneous noises—just clean, tight, and extended bass. In fact, even when reproducing high levels of low bass, I could feel with my hand very little wall vibration. It was a delight and a surprise to hear such extremely clean bass, free from any in-wall artifacts.

As for the low frequencies themselves, their delivery was classic JL Audio—a combination of an extremely powerful, dynamic, extended, iron-fisted quality on one hand, and a remarkable resolution of dynamics, pitch, and texture on the other. I've lived with JL's superb Fathom f113 freestanding subwoofers (2019 Golden Ear Award and former Product of the Year winner) and was expecting a large step down. No, the IWSes weren't quite a match for a pair of JL's Fathom F113v2s, but their performance came a lot closer to those benchmarks than you (or I) would

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have thought—delivering an overall presentation previously unimaginable from an in-wall sub. On film soundtracks, the IWS reproduced low-frequency effects with explosive dynamic impact along with a suddenness to the start and stop of those effects. I heard no hint of dynamic compression or indication that the system was nearing its limits. Even when testing the system beyond normal listening levels with very deep bass, the room and my ears were the only limiting factors, not the IWS. In retrospect, the 8" version of the IWS would probably have been sufficient for a room of my size, but then again it might not have delivered the extension at the very bottom end that I heard with the 13.5" model.

Film sound effects, however, can only tell you so much. On music, the IWS didn't sacrifice pitch definition, articulation, and transient agility to deliver home-theater thrills. The IWS was remarkably nuanced in conveying the texture and dynamic shadings of acous-

tic bass and bass guitar. Bassist Brian Bromberg's album *Jaco* (a tribute to Jaco Pastorius) features virtuoso bass playing encompassing lightning-fast runs over a wide register. Every note of Bromberg's instrument was precisely articulated in pitch and dynamics, with no smearing of the starts and stops of those notes. Significantly, the IWS maintained this clarity and agility regardless of register, in contrast with many subs that sound thicker and more congealed as pitch descends. The bass was extremely flat, smooth, and consistent in amplitude over a very wide range. This combination of powerful muscularity, unfettered dynamics, and taut clarity was extremely rewarding. Another favorite bass test, Ray Brown's *Soular Energy*, showed how well the IWS resolved fine texture and tone color. His instrument had body, timbral color, and detail rather than sounding like generic low frequencies. But most importantly, the IWS didn't dilute Brown's incomparable sense of swing. Many five-figure

freestanding speakers are not this resolved in the bass.

The sub amplifier's extensive controls, coupled with the DARO room-correction system, allowed the IWS to integrate with the main speakers without audible discontinuity. There was never a sense, with music or film soundtracks, of two disparate elements creating the sound. Moreover, the IWS disappeared when there was little or no bass energy, where many other subs produce a droning sound that's a constant reminder of the subwoofer's presence.

Conclusion

JL Audio's IWS in-wall subwoofer system doesn't just rival the performance of generic freestanding subwoofers; it rivals the performance of JL Audio's freestanding subwoofers, which is an entirely different proposition. If you want uncompromised bass performance in a room that won't easily accommodate freestanding subwoofers, there's only one game in town. **tas**

