

## Hsu VTF-15H Subwoofer

**PRICE:** \$879 **AT A GLANCE:** Unique setup features • Sealed or ported operation • Powerful, subterranean bass

## Love Hz



**D**r. Poh Ser Hsu designed and sold his first subs around 1991. They were tall, tube-like structures, built from the forms used to pour concrete pillars. The tubes were made of relatively thin fiberboard (roughly 0.125 inches thick), and their cylindrical shape made their walls tremendously strong and resistant to flexure. More important, they were relatively light, which was ideal for Hsu's direct-from-the-factory sales plan.

While such tubular designs are still available from other vendors, Hsu ultimately transitioned to more conventional flat-sided fiberboard enclosures, which now dominate the company's extensive subwoofer line.

The VTF-15H is Hsu Research's newest model. It's also the biggest, and a remarkable value. You don't need a lot of jack to add this box to your home theater, even when you include the roughly \$1-per-pound shipping cost of this 100-plus-pound monster. I don't review many subwoofers outside of complete systems, but this one offers so many unique setup options that I couldn't resist having a look—and a listen.

**Totally Not Tubular**

Apart from its size, the VTF-15H is little different from other subwoofers in appearance—a squarish (or in this case rectangularish) block in Satin Black. It's also available in a flawless Rosenut finish for a \$120 price upgrade. Rosenut isn't a real species; it's another wood veneer that's been stained to resemble pricey and environmentally taboo Rosewood.

I had no complaints about the Hsu's fit and finish, apart from the

cardboard spacer ring around the perimeter of the 15-inch driver's frame. The driver is neither flush-mounted nor trimmed out in a way that would hide this spacer, although I suspect that either solution would add to the price. I'll take the savings, thank you very much. A sculpted grille hides all of this anyway. I removed it early in the review—audiophile habits never die, nor do they fade away. But unless they rattle, grilles will have virtually no effect on a subwoofer's sound.

The onboard amplifier is a BASH design with Class A/B output rated at 1,400 short-term watts or 350 watts continuous. Below the driver are two large, triangular ports. You can leave one or both of the ports open, or block them with either or both of the two matching foam bungs that come with the sub. In other words, the VTF-15H can function as either a sealed or ported design. To optimize it for either of these options, there's a two-position EQ switch on the back panel. There are five modes of operation offering either maximum headroom or maximum extension, depending on how you use the foam bungs and the EQ switch. The only combination that is cautioned against (because it could both damage the driver and void the warranty) is EQ1 with both ports open.

There's also a Q adjustment with continuous settings from 0.3 to 0.7. A system's Q alters its damping, but it can also affect its frequency

HSU VTF-15 SUBWOOFER  
**PERFORMANCE** ★★★★★  
**VALUE** ★★★★★  
**BUILD QUALITY** ★★★★★

response. The lower the Q, the faster the rolloff and the less chance of a peak in the response; too low a Q can sound anemic or lean and dry. Manufacturers often err on the high side, as fatter bass sells better. Mass-market speakers with a Q of 1.0 or more, with their maximum bass peaking somewhere between 50 hertz and 100 Hz, aren't uncommon.

In addition, the VTF-15H provides most of the prosaic

features found in most modern subwoofers: speaker- and line-level inputs, an on/auto/off switch (auto turns the sub on or off depending on the bass content it receives), a two-position phase switch, and of course, the ever-popular volume control.

Hsu products also come with a 30-day, money-back guarantee to make sure you're satisfied (although you'll be out the two-way shipping costs). Somehow I doubt they get many returns.

**The Subwoofer Hokey Pokey**

Locating full-range speakers where they provide the best



soundstage imaging in your room—or even the place demanded by the location of your HDTV or projection screen—may not (and in most cases will not) be the best place for them to generate their best bass response. A subwoofer offers a way around this problem. You can position it independently of where the main speakers work best—or where they must be placed.

How you choose to set up the Hsu's variables—ported or unported, EQ1 or EQ2, and Q setting—will depend on your taste, your room, and the locations of your main speakers, the subwoofer, and the listener. You can't determine the best mix of these often competing variables beforehand. It takes experimentation with placement to get the best from any subwoofer.

Hsu's own published curves (hsuresearch.com) indicate that the one-port, max-extension mode has a -3-decibel point of around 18 Hz with a Q of 0.7, with useful response below that. I slightly preferred a Q of 0.5, although the difference between 0.5 and 0.7 was subtle at best. Even at 0.5, I confirmed on test tones that there was audible output in my room as low as 12.5 Hz, although at a very low, almost subliminal level. The output at 16 Hz was strong enough to generate a mighty wind of port noise.

I ultimately located the Hsu with the driver facing to the side, roughly behind the center speaker and about 1 foot from the wall behind it. I also preferred the sealed maximum-extension mode, with a Q of 0.5. Hsu's curves indicate that the sub's response in this mode, with the Q set to 0.7, will have a -3-dB point of 28 Hz (independent of the room). In my room in this mode, with the Q set to 0.5, a 25-Hz tone was loud and clear, a 20-Hz tone was less so but still unmistakable, and a 16-Hz tone was barely audible.

The remainder of the speakers in the system were Revel Concertas: the F12 floorstanders left and right, the C12 center, and the S12 surrounds—a high-value package that has been the lowest-priced system in Revel's lineup for several years.

### Way, Way Down Deep

Do you need a good subwoofer for basic two-channel listening? Before I got cranking in 5.1 or more channels, I wanted to address this question. But it's complicated.

The Revel F12, which has two 8-inch woofers, does a remarkable job in the bass on its own. Measurements have shown that it has some added plumpness in the low end, but when positioned well away from adjoining walls, as it was in my room, the bass is strong and relatively tight down to 40 Hz or slightly lower. Its low-frequency power handling is good as well (even a small bookshelf speaker can respond down to 40 Hz, but will overload at that frequency far sooner than the F12 as the level increases).

So it was no surprise that the Hsu's audible presence was inconspicuous with most music. That's a good thing. You don't want a subwoofer muddying up string quartets or solo vocals. The Hsu doesn't. But when I threw on a pipe organ or a pop mix heavy on subterranean synthesizer, with the crossover performed by my Integra DTC-9.8 surround processor (both low- and high-pass at 80 Hz for all the subwoofer comments in this review), I clearly heard what the Hsu could do to upgrade the listening experience. The Hsu subtly improved the sound of a bass drum, which doesn't extend much below 40 Hz. The relative timbre was the same with and without the sub, as was the initial drum stroke, but the subwoofer's presence definitely enhanced the deep, rolling, reverberant tail generated within the performance venue.

When I substituted a small, modest pair of bookshelf speakers for the Revels, the sub/no-sub comparison became far more dramatic. The small speakers were Pioneer's \$149-per-pair SP-BS41-LR (*Home Theater*, June 2011). The Pioneers imaged exceptionally well and were well balanced with low coloration. But by themselves, they were clearly compromised at the bottom end—on most music, not just bass torture tracks. To be fair to the Pioneers, my setup put them well out into the room, with little help from the bass reinforcement that nearby walls offer. But when I

brought in the Hsu, the combination rocked. It didn't make more ambitious speakers seem irrelevant, but most listeners would likely be floored at how good this combination sounded.

Apart from a little bloat on the occasional very deep and prolonged bass line, the Hsu did virtually nothing wrong with music. Nevertheless, I dialed it in in the Audyssey room correction in the Integra processor with the Pioneer/Hsu setup just to see what it would do. At the top, it added a trace of brightness to the Pioneers that didn't flatter what is obviously a decent but not terribly sophisticated tweeter. But they remained balanced and coherent, with fine imaging and depth. And the bass? It was as good as described above, with the added benefit of a small but significant tightening up of those previously difficult, prolonged bass lines.

### I Feel the Earth Move

With the Revel F12s back in their places of honor and the Integra's Audyssey again turned off, I settled in for some quality 5.1-channel Blu-ray movie time with the Hsu. I wasn't disappointed.

As before, the Hsu didn't intrude when it wasn't supposed to. But when it did, the result could be earthshaking. I've experienced more expensive subwoofers that can provide as much extension, together with tighter deep-bass resolution. But often such subs seem to be on the verge of overloading at the high playback levels that many home theater fans demand. Not the Hsu. In its sealed-box mode in particular, it laughs in the face of such a thing. I'm sure there are users out there who can drive it into submission, but I don't want to be in the room when that happens.

*Tron: Legacy* may be a bit of a stiff as a story, but as eye and ear candy, it's exceptional. The soundtrack, in particular, is mind-blowing. It has almost too much bass, and as heard in my local IMAX theater (which has Warp 9 bass to begin with), it nearly blew me out of my chair. In



• The VTF-15H subwoofer can function as a sealed or ported design.

my home theater, with the Hsu engaged, it more than equaled that experience, but in a different, more rewarding way. I don't want to overstate this (this film's sound mix is definitely more "shove" than "nudge"), but in the theater, I was swimming in a murky ocean of numbingly powerful but bloated bass. The Hsu projected less sheer power (I don't have 30,000 watts at home—or whatever it is IMAX claims), but its bass was deeper, cleaner, more textured, and ultimately, far more impressively gut-wrenching.

The THX trailer *Amazing Life* doesn't appear on many discs, but if you have a copy of *Avatar* or the new Blu-ray *Star Wars* box set, you've likely already seen it. If the bass in your system doesn't get your attention here, you need a new subwoofer. The Hsu unequivocally puts it front and center.

*Thor* is a subwoofer killer from beginning to end. When Odin strikes his staff against the throne-room floor in the early Asgard scenes, it's clear you're not in Kansas anymore. The same for when Thor overturns the banquet table later in the same chapter, or when Thor and his companions travel through the Bifröst to Jotunheim.

But there's more to *Thor's* soundtrack than simply shock and awe. There's subtlety as well, not all of it intentional. Starting at about 13:00 into the film (in chapter 2), there's a deep thrumming in the background that appears to have no purpose

# MIDRANGE Hsu VTF-15H SUBWOOFER

## HT Labs Measures

### HSU RESEARCH VTF-15H SUBWOOFER

This graph shows the quasi-anechoic (employing close-miking) frequency response of the VTF-15H subwoofer with one port open (blue trace) and with both ports sealed (red trace). In both cases, the Operating Mode switch was set to EQ1 and the Q Control

was set to maximum.

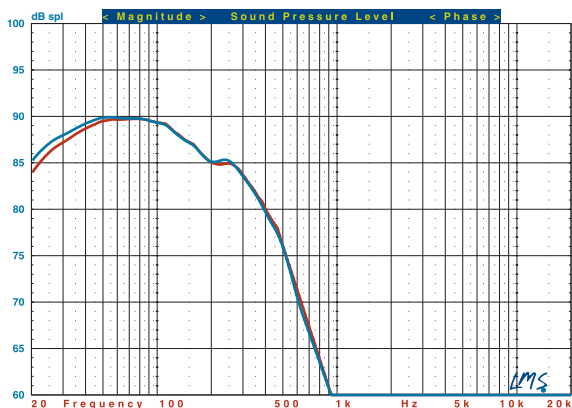
The VTF-15H's close-miked response with one port open, normalized to the level at 80 hertz, indicates that the lower -3-decibel point is at 24 Hz and the -6-dB point is at 18 Hz. The upper -3-dB point is at 162 Hz with the Crossover switch set to Out.

The VTF-15H's close-miked response with both ports sealed, normalized to the level at 80 Hz, indicates that the lower -3-dB point is at 27 Hz and the -6-dB point is at 20 Hz. The upper -3-dB point is at 165 Hz with the Crossover switch set to Out.—MJP

Visit our Website for a detailed explanation of our testing regimen, plus a list of our reference gear.

on the web

### HSU RESEARCH VTF-15H SUBWOOFER



## SPECS

### HSU VTF-15H SUBWOOFER

**ENCLOSURE TYPE:** Sealed or ported (user option)  
**WOOFER (SIZE IN INCHES, TYPE):** 15, paper  
**RATED POWER (WATTS):** 1,400 short term; 350 continuous  
**CONNECTIONS:** Line-level L/R, high- (speaker-) level L/R  
**CROSSOVER BYPASS:** Yes **AVAILABLE FINISH:** Rosenut or Satin Black  
**DIMENSIONS (W X H X D, INCHES):** 18 x 25 x 26  
**WEIGHT (POUNDS):** 123 **PRICE:** \$879 (Satin Black), \$999 (Rosenut)

in what is otherwise simply a quiet conversation between Thor and Loki. The sound is likely just cyclic low-frequency noise that even the mixers missed. While it's not loud enough to be intrusive, with the Hsu you'll perceive it.

*Thor's* music also has its share of deep bass. While this isn't the sort of thing that's likely to knock you back on your heels, the Hsu definitely helps bring out the richness in the score, beautifully performed here by the London Symphony Orchestra.

Finally, for a Space Shuttle launch in all its grumbling glory, check out the second launch in *IMAX: Hubble 3D*—even if you only watch it in 2D. If this sequence (chapter 2, 18:20) on your present system doesn't induce panic about a subwoofer-generated-damage clause in your homeowner's insurance, you need a better sub. Like the Hsu.

### Conclusions

I've had many subwoofers in my home theater, though not all of the more recent, pricier designs. Some of these, the heard and as yet unheard, might offer a more manageable size, built-in DSP, multiple drivers, or other refinements. Many clearly offer exceptional performance. But none of them sells for less than \$1,000. It's hard to visualize a subwoofer priced this low that needn't apologize for the quality of its bass, its low-end extension, or its setup flexibility. But I can clearly visualize at least one. It's sitting directly behind my center-channel speaker—the Hsu VTF-15H. 🎧

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