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SOUND TO THE EXTREME

German Physiks
HRS 120 Loudspeakers

February 15, 2008

"...your audiophile friends will **gawk in amazement** when they **first hear them.**"

One thing that I'm sure is true of all audio-equipment reviewers is that we're always looking for the next great thing—and on paper, the German Physiks HRS 120 looks as if it could be a nearly perfect loudspeaker. This is because of some specific design attributes of the unique drivers used in German Physiks speakers, and by the very nature of how sound is produced.

The HRS 120 is omnidirectional: it radiates sound in a 360-degree arc around itself. Most speakers—the two- or three-way direct-radiating models with woofers and tweeters—are omnidirectional only at low frequencies. In a typical three-way speaker, soundwaves become increasingly directional as the frequency rises, and less directional at lower frequencies. This can be easily visualized if you think of sound as light, and of the woofer as a lantern. A lantern sitting in the middle of a square room would radiate light equally to all four corners. Bass produced by the woofer essentially spreads out in all directions, just like light from a lantern—this is why you can place a subwoofer almost anywhere in your room, and as long as it's set correctly in terms of crossover, phase, and level, you can't locate it unsighted. But the midrange driver of a three-way speaker is less like a lantern than like a conventional flashlight. A flashlight generates a beam of light that radiates in one general direction, but that beam also spreads out gradually in evenly decreasing levels of light in a cone of increasing diameter around the central beam. Lastly, think of the tweeter as a laser pointer that sends a narrow, sharply defined beam of light to one point directly on its axis. As you can see, as you move up from the woofer to the midrange to the tweeter, the sound becomes more directional, focused more and more on a central point. This is how all direct-radiating cone-and-dome speakers work.

Contrast that imaginary, three-way, light-emitting loudspeaker with a musical instrument playing in a real space. You could think of the instrument as being much like a sphere—the sun is a good analogy—in that it emits sound in all directions, and fairly evenly all around itself. Would our three-way speaker be better if, instead of three elements producing soundwaves of different degrees of focus, it had only a single driver that produced *all* of the sound, and emitted it in all directions—just like a musical instrument? Essentially, that is what the German Physiks HRS 120 tries to do.

The primary piece of technology used in the HRS 120 to accomplish this feat is a bendingwave device, the Dick Dipole Driver (DDD)—a technological marvel with quite a history. The forefather of the DDD, developed by Lincoln Walsh shortly after World War II, became known as, surprise, the Walsh Driver. Walsh died before his invention could become a commercial success. The concept was then examined in the mid-1980s by an engineer, Peter Dick, who brought his own set of solutions to the table. Dick then handed the baton to German Physiks' Holger Mueller, who further perfected it during seven years of research. The DDD driver is now used in all German Physiks loudspeakers. (Ohm Speakers also uses a variation on the original Walsh, which they call the Coherent Line Source, or CLS, driver.)

The Dick Dipole Driver is a diaphragm in the shape of a downward-firing cone that terminates in a roll surround below and a spider above. Visualize a woofer facing the floor that, instead of producing sound from the face of the cone, as a conventional driver does, produces sound from the *other side* of the cone, which has been elongated significantly compared with a normal driver. There are other interesting technical bits about the DDD as well; you can find plenty more information on the 'net. For our purposes, what's important is that German Physiks loudspeakers operate in free space in a manner more in keeping with the way a musical instrument does.

The second theoretical advantage of the DDD is that, in the case of the HRS 120, it produces the entire musical spectrum above 240Hz. Below that frequency the DDD hands off to a bottom-mounted downward-firing 8" woofer. This removes the crossover from the most critical part of the music: the midrange. In a conventional three-way speaker the midrange hands off to the tweeter, and *that* crossover point can result in audible discontinuities. In the HRS 120, that crossover point does not exist; the DDD reproduces the midrange *and* the treble.

The German Physiks HRS 120 is a relatively small floorstander with an octagonal cross section; it measures 45"H x 12.6"W x 12.6"D and weighs 65.1 pounds. Its claimed frequency response is

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> "They produced the most expansive, most three-dimensional soundstage I've yet heard in my room."

31Hz-21.5kHz, and it requires a minimum of 100W delivered to its 4-ohm load. Another unique feature is that the HRS 120 has four settings for the slight adjustment of the high frequencies: -2dB, Flat, +2dB, and +4dB. If your room is overly absorptive, for instance, you can add a few dB to account for it. My review sample of the HRS 120, with a titanium DDD driver and high-gloss wood veneer (a standard wood finish knocks off about $4000/pair), costs $28,595 USD per pair. Or you can up the ante by choosing the carbon-fiber DDD with the carbon-fiber enclosure, which tops out in the mid-$30k area. Check with the distributor, Signals SuperFi, for all the options.

My review system for auditioning the German Physiks HRS 120 consisted of an Apple MacBook laptop running iTunes, connected to a Stello DA220 Mk.II digital-to-analog converter via a USB cable. The Stello fed, via balanced cables, a Simaudio Moon Evolution P-8 preamp, in turn connected via XLR interconnects to either a Vitus Audio SS-101 stereo power amplifier or Pass Labs X600.5 monoblocks. All cables were from Shunyata Research, as was the power conditioner, a Hydra V-Ray.

Sound

Stereotypes abound in audiophilia: "tube amps have weak bass," "solid-state amps are grainy," "digital sounds harsh," "analog sounds warm." Some of these stereotypes are perhaps rooted in truth, but none of them applies to every specific case. The knock against omnidirectional speakers is that they sound diffuse—or, to put a finer point on it, they can't image. The flip side of that stereotype is another: that omnidirectionals sound incredibly spacious. But the German Physiks HRS 120 was the first omni I heard in my room, and I didn't know exactly what to expect.

My room's design should be noted in this review because of how it affects sound. There aren't tons of absorptive panels in the Music Vault. It wasn't designed like a home theater, in which there would be five or seven sources of sound, obviating the need to heavily depend on reflections of the direct sound by the room boundaries to create a greater sense of space. Instead, my room was designed to be pretty lively, but the use of diffusers makes it also quite neutral: In the Music Vault, frequencies don't bunch up at my listening position because of uncontrolled reflections. When presented with a more or less neutral speaker system, my room has a generally flat frequency response, particularly from the midrange up through the highs. This turned out to be important with the HRS 120—with an omnidirectional loudspeaker, the room matters even more than usual. Unlike a more conventional speaker, where the lion's share of the sound is aimed directly at the listener, an omni emits a great deal of its energy to the sides of and behind its enclosure. *All* speakers produce sound off axis; but because an omni produces far *more* off-axis sound than a conventional speaker, what your room does with it is even more important than usual. In the Music Vault, reflected sound is dispersed evenly throughout the room—a good thing.

Because of the Music Vault's uniqueness, I'm not sure if what I heard from the HRS 120 will precisely predict how it will sound in your room; a home audition will be even more critical with the HRS 120 than is usually the case with loudspeakers. So with that caveat, I'll start off by killing a stereotype.

The HRS 120s imaged wonderfully. I heard a defined center image and performers that were easily identifiable within the soundstage—as long as the recording included such information. One of my tests for imaging is Eva Cassidy's cover of Buffy St. Marie's "Tall Trees in Georgia," from *Live at Blues Alley* [CD, Blix Street 10046]. Her spoken introduction of the song should be very precisely centered and properly scaled. When these things are accomplished, the recording sounds like the in-concert performance it actually was. The HRS 120s reproduced this track superbly.

But just because the German Physiks speakers cast a precise center image doesn't mean they sounded just like any good-imaging direct-radiating loudspeaker—what was happening out to the sides of the center image was one of the things that made them special. If you like an

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Speakers:
Rockport Technologies Altair

Amplifiers:
Vitus Audio SS-101, Pass Labs X600.5

Preamplifier:
Simaudio Moon Evolution P-8

Sources:
Apple MacBook running iTunes, Stello DA220 Mk.II D/A converter

Cables and power conditioning:
Shunyata Research: Antares interconnects, Orion speaker cables, Hydra V-Ray power conditioner

expansive soundstage, the HRS 120 is your speaker. They produced the most expansive, most three-dimensional soundstage I've yet heard in my room. The sound was melt-the-walls-away wide and deep. The result was that the speakers truly "disappeared" from the music, leaving behind only some of the most beautiful sound I've ever heard. Live recordings with lots of natural ambience sounded very close to live. Nor was there any keep-your-head-in-a-vise issue of imaging: the HRS 120s kept a stable image even when I listened a couple of feet or more off axis. These would make great speakers for a home theater in which a number of people sat side by side, all listening at once.

The HRS 120's tonal balance, too, surprised me—in terms of neutrality, it sounded fairly "normal." I don't know exactly what I was expecting; I guess I thought the DDD would sound entirely different from what I'm used to. But it didn't, and that was another good thing. The top end was extended, though not unnaturally so. It wasn't as delicate and airy as a good ribbon tweeter's, but there was more meat on the bones. To me, ribbon tweeters can sound somewhat thin, but *thin* does not describe what I heard from the HRS 120's Dick Dipole Driver. The midrange had lots of energy in the presence region, something I confirmed with a set of in-room measurements. So although voices sounded just a touch upfront, they didn't sound flawed. In fact, the DDD seemed to reveal *more* information about vocalists. A good example was "I've Got You to See Me Through," from Eleanor McEvoy's *Yola* [CD, Market Square 113]. The piano's tone was spot on, and McEvoy's voice was natural, clear, and detailed.

The transition to the bass was surprisingly seamless. Chalk it up to another stereotype, but I think I'd subconsciously expected the DDD to shine, and the HRS 120's standard woofer cone to sound lacking by comparison. What I instead heard was bass that was reasonably extended and kept up with the DDD with good speed and integration. The only real nit I had to pick was a slight lack of midbass punch. My reference speaker is the Rockport Technologies Altair—which, at $89,500/pair, costs more than three times as much as the HRS 120. The Altair, a true four-way design with an 8" midbass cone, produces the most realistic weight in the lower midrange and upper bass that I've ever heard. So it's natural that the HRS 120 would sound lacking in this area to me. I also think that your choice of music will tell you whether or not this will be an issue for you. If you like Moby's *Play* [CD, V2 27049], which is very heavy in the midbass department, you may detect the weakness. With most strings, though, it won't be an issue.

I did not have on hand a good comparison speaker for the HRS 120, and I'm not sure that it would be all that helpful to contrast the HRS 120 with any old conventional loudspeaker. Maybe it would be better to tell you how the HRS 120 sounded vs. *most* direct-radiating speakers—in other words, type A vs. type B instead of model vs. model. In a nutshell, it came down to the way a pair of omnis image. A direct-radiating speaker will produce a more compact soundstage, one not spread as far to the outsides of the speakers as that produced by the HRS 120s. Perhaps the better direct-radiating speakers can sound a touch more focused than the HRS 120s—the Rockport Altairs surely do—but the difference would not be night and day. But most important, the HRS 120s *did not sound diffuse*. They simply produced a wider, deeper soundstage—to most audiophiles, characteristics that will be welcome improvements. Second, the DDD's transition from midrange to high frequencies was continuous. Most of us have heard speakers that have, say, a great midband but a weak treble. But I got no impression that the DDD was better at one frequency range than another—it was very good across the audioband.

Conclusion

I'd be remiss if I didn't discuss the HRS 120's price. Almost all luxury goods imported from Europe are even more expensive these days, and the German Physiks HRS 120 is no exception. The weakness of the US dollar, coupled with the fact that retailers receive most European goods from a States-side distributor, makes the idea of purchasing such a product one that should be carefully considered. This is true not only of German Physiks but of all European, and even some high-end Japanese brands.

On the other hand, Germans Physiks loudspeakers have something unique: their sound. The Dick Dipole Driver, now virtually perfected, has been put to good use in the HRS 120, where it

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HRS 120 Loudspeakers

Price: $28,595 US per pair in high-gloss wood veneer.
Warranty: Three years parts and labor.

DDD-Manufactur GmbH
Gutenbergstrasse 4

63477 Maintal, Germany
Phone: (49) 61-09-50-29-823
Fax: (49) 61-09-50-29-826

Email:contact@german-physiks.com
Website: www.german-physiks.com

US distributor:
Signals SuperFi, LLC

828 Ralph McGill Blvd., Studio W3
Atlanta, GA 30306
Phone: (678) 528-8077
Fax: (678) 884-1167

E-mail: chris@signals-superfi.com
Website: www.signals-superfi.com

produces a sound that is quite marvelous—I loved listening to these speakers. And don't let their small size fool you. A pair of HRS 120s could play plenty loud in my room and not sound strained. I enjoyed several nights of playing music such as "Fell on Black Days," from one of the 1990s' best alternative albums, *Superunknown* [CD, A&M 540198], from Soundgarden. The HRS 120s could flat-out rock when called on to do so. Lastly, the fit'n'finish is excellent—I'd love to see and hear the version of this speaker that includes the carbon-fiber DDD and 10" woofer.

Its high price notwithstanding, I recommend you seek out the German Physiks HRS 120 to audition—something that should be easy with the help of their very professional importer, Chris Sommovigo of Signals SuperFi. You might just fall in love with them. If you do, I can just about guarantee that you'll be the first on your block to have a set, and that your audiophile friends will gawk in amazement when they first hear them.

...Jeff Fritz
jeff@ultraaudio.com

Signals-SuperFi responds:
Editor,

First of all I want to thank you for tackling a challenging review. There are so few omni loudspeakers out there in the world, and fewer still are direct-radiating omni loudspeakers. In fact, there exist only two commercial brands of direct-radiating omnis being imported into the US right now and German Physiks is one of them. So it was not without some level of trepidation on both of our parts that we entered into this review, as this was your first *in-home* experience with an omni of this caliber (or any omni, as far as I know) and my first submission of a German Physiks loudspeaker for review. I'm very satisfied to have read that the HRS-120 delivered on the DDD's promise of the broadband omni for you.

The stunning "melt-the-walls-away" soundstage width and depth coupled with three-dimensional imaging, natural tonal balance, and seamless integration of all frequencies... all of these are the hallmarks of the German Physiks "house sound" that really inspired me to adopt this extraordinary brand in the first place. Because the DDD driver is the central feature of all German Physiks loudspeakers, the magic of their signature sound can be had from their entry-level $15k Troubador 40 monitors through to their astonishing $365,000.00 Gaudi", ber-reference—and all points between.

Euro vs. the US dollar: to quote the famous Persian mystic and poet Rumi, "It is what it is." The last time the euro and the US dollar traded at even paces was in late 2002. To put that in commodity perspective: gold was trading at about $345 per troy ounce. Today gold trades at over $900—almost tripling within five or so years. It costs what it costs.

I suspect we should get accustomed to the idea that this is not a temporary anomaly, but rather a longer-term trend that informs the price of cheese and wine as much as it does the price of loudspeakers. As a gastronome and an audiophile I would hate to deny myself *any* of it.

In the $25k to $30k range audiophiles have many loudspeaker choices, from the traditional doyens of the industry to the upstarts challenging our expectations for the category. From ambitious two-way mini-monitors to full-range multi-way floorstanders, the menu in his price range seems fairly vast. Into that fray we've cast the HRS-120, the first in the floorstanding series from German Physiks, as an alternative to the "cones and domes in boxes" approach that we're all otherwise familiar with. The HRS-120 gives the listener more than a generous taste of what a truly exquisite omni loudspeaker sounds like, and I'm glad that you took the opportunity to be immersed in its magic—and happier still that you've so clearly articulated your experience for readers to enjoy.

Again, thank you for a very thoughtful and delightful review!

Best regards,

Chris Sommovigo, Signals-SuperFi, LLC