

Audio Physic Scorpio

Michael Fremer

LOUDSPEAKER

DESCRIPTION Floor-standing, reflex-loaded loudspeaker. Drive-units: 1" soft-dome tweeter, two 6" coated paper-cone midrange units, four 7" coated paper-cone woofers. Frequency range: 30Hz–33kHz. Nominal impedance: 4 ohms. Sensitivity: 91dB/W/m.

DIMENSIONS 43" (1100mm) H by 8.1" (204mm) W by 15.2" (390mm) D. Weight: 59.4 lbs (27kg).

FINISHES Light or dark maple, black ash, cherry. Ebony, rosenut veneers add \$500/pair.

SERIAL NUMBERS OF UNITS

REVIEWED 088A/B.

PRICE \$6495/pair. Approximate number of dealers: 26. Warranty: 10 years parts & labor.

MANUFACTURER Audio Physic GmbH, Almerfeldweg 38 59929, Brilon, Germany. Tel: (49) (0)2961-961-70. Fax: (49) (0)2961-516-40. Web: www.audiophysic.com. US distributor: Soundquest LLC, New York, NY. Tel: (212) 731-0729. Fax: (212) 731-0730. Web: www.soundquest.usa.com



Audio Physic Scorpio loudspeaker

There is a sweet spot in any manufacturer's lineup where minimum price and maximum performance meet. More expensive products in the line may offer higher fidelity, but the cost may not be commensurate with the improvement. For instance, VPI's HRX and Super Scoutmaster turntables cost more than their standard Scoutmaster model, and they perform better—but for my money, the sweet spot of VPI's line is the standard Scoutmaster, with or without such options as the outer clamp and Signature tonearm.

Back in the 1990s, the sweet spot of Audio Physic's line of loudspeakers was the Virgo II (\$4995/pair at that time). Some thought the tiny Step filled that niche, but for me, the Virgo II was magical. I preferred it to an AP speaker that, at the time, cost \$10,000/pair and whose name I can't even remember, which should tell you something.

I've been waiting for the Virgo II's replacement ever since. The Avanti III, which I reviewed in the August 2001 issue (Vol.24 No.8), was far more capable in every way than the Virgo II, it was my reference for a few years, and it's still a great speaker—but to my ears, the Virgo II's magical balance of strengths eluded it. Same with the Virgo III that Brian Damkroger reviewed in September 2003 (Vol.26 No.9): more capable in every way than the II and, at \$7495/pair, more

expensive than the Scorpio, but lacking the IP's mojo.

After my less-than-enthusiastic review of Audio Physic's Caldera (\$30,000/pair) in November 2005, credit AP and their importer, Gabby Amram of Soundquest LLC, for giving me the opportunity to review the Scorpio, which I requested after hearing a short demonstration at the Consumer Electronics Show in January. In fact, walking into AP's room at CES 2006 not long after that Caldera review had been published was, um, interesting. When I encountered Audio Physic's

business manager, Dieter Kratochwil, and asked him how the show was going, he looked me straight in the eye and said, "Until just now? Fine!" I loved his honesty and had a good laugh (to myself). Had our roles been reversed, I'm sure I wouldn't have been thrilled to see him, either.

Scorpio

Audio Physic's Scorpio is a rear- and bottom-ported design that could be considered a smaller version of designer Manfred Diestertich's bottom-ported Avanti III (\$12,495/pair) or a larger ver-

sion of AP's Tempo (\$3995/pair). Either view would probably suit Audio Physic, who intend the Scorpio to bridge the gap between those two models. The Scorpio costs \$6495/pair-\$6995/pair, depending on finish.

It's also handsome. The complex, well-braced cabinet, manufactured by Hornslet in Denmark using that company's patented Hornflex technology, features a narrow front baffle tilted back 7°, and nonparallel side panels that curve toward the rear. Unlike the curvaceous Avanti III, though, the Scorpio's rear surface is flat. The

MEASUREMENTS

The Audio Physic Scorpio has a high specified sensitivity of 91dB/W/m. However, measured on its tweeter axis without the grille, the speaker appeared to have just above average voltage sensitivity, at an estimated 88.5dB(B)/2.83V/m. Its impedance (fig.1) stays between 4 and 6 ohms over most of the audioband, with a minimum value of 3.6 ohms at 93.5Hz. There is also a combination of 5.2 ohms and a -41° electrical phase angle at 78Hz, which might be taxing for optimistically specified power amplifiers, given that many kinds of music tend to have a lot of energy at this frequency.

A discontinuity is visible in the impedance traces at 125Hz, suggesting some kind of resonance. However, while a cumulative spectral-decay plot (calculated from the output of an accelerometer fastened to the front baffle and level with the center of the side-mounted woofers) revealed a major vibrational mode at 266Hz (fig.2), the other panels were relatively well-behaved and nothing was evident at 125Hz.

The saddle centered between 30Hz and 40Hz in the impedance-magnitude trace suggests that the rear- and bottom-facing ports are tuned to a low frequency. The green trace in fig.3 shows the summed acoustic output of the ports, measured in the nearfield and scaled in the proportion of the square root of the total radiating area com-

pared with those of the woofers and the midrange units. A little down in level, it doesn't fully extend the Scorpio's low-frequency response, though this graph does not take into account the fact that the bottom port's output will be reinforced by the floor. The ports will also relieve the woofers of high midbass excursions. The trace also has some resonant peaks evident in the midrange, though these are well down in level, and there is a small peak present at 125Hz.

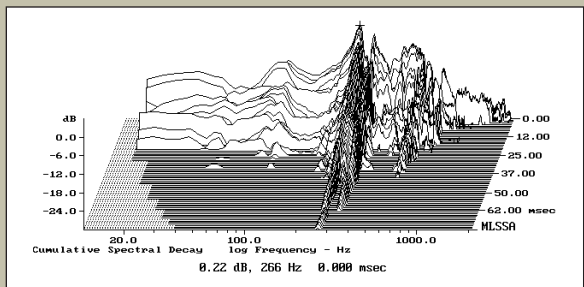


Fig.2 Audio Physic Scorpio, cumulative spectral-decay plot calculated from the output of an accelerometer fastened to the cabinet's front baffle level with the woofers (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

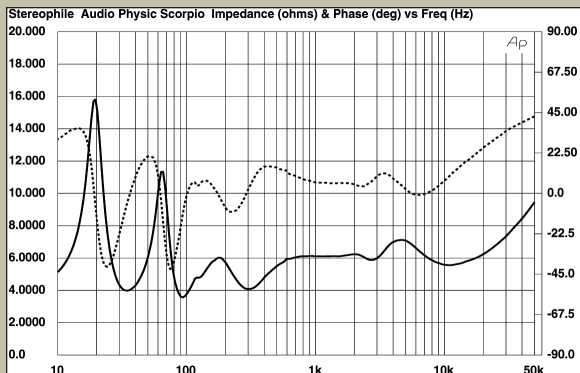


Fig.1 Audio Physic Scorpio, electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

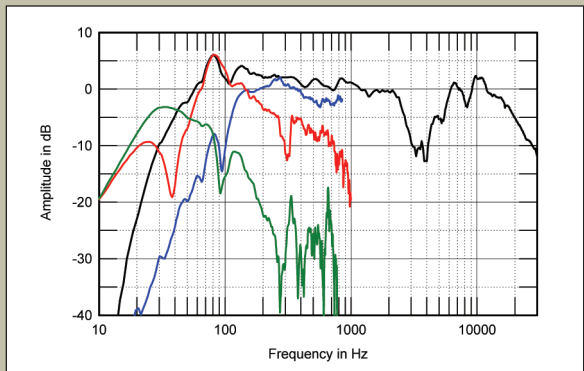


Fig.3 Audio Physic Scorpio, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with the nearfield responses of the midrange units (blue), woofers (red), ports (green), and their complex sum (black).

vener and overall fit'n'finish are exceptional. This graceful-looking, ideally proportioned speaker would be at home in the swankest living room—especially in the review pair's ebony finish.

The foundation of the Scorpio's sound is provided by four 7" paper-cone woofers: two on each side operating in push-push configuration, which is said to cancel cabinet resonances. The lower of the two front-mounted 6" coated-paper-cone drivers operates as a midbass/lower-midrange driver from 150 to 500Hz, while the upper one operates between 150Hz and 2.8kHz, and hands the signal off to a 1" modified soft-dome tweeter.

COLD OUT OF THE BOX, THE SCORPIO PRODUCED AN UNMISTAKABLY COHERENT PICTURE.

Like the Caldera and other recent AP speakers, the Scorpio has, on its rear panel, a massive, elastomer-suspended vibration-control plate of solid aluminum that contains the speaker terminals. Spiked metal cross-braces attached to its base support the cabinet.

No loss of fine detail?

The Scorpios offered the best tonal balance and spatial presentation when placed in the same positions other Audio Physic speakers have occupied in my room, give or take a few critical inches one way or another. This was no surprise—room dimensions play a major role in speaker and listening-seat positions, and the Scorpios ended up where most speakers, regardless of brand, end up in my room. Audio Physic supplies one of the most informative set of speaker-setup instructions I've seen, though the English translation could be reworked to provide greater clarity.

Cold out of the box, the Scorpios

measurements, continued

The minimum-motion point of the woofers' summed outputs (fig.3, red trace) occurs at a fairly low 38Hz, with a response rise above that frequency peaking between 80Hz and 100Hz. Most of this peak will be due to the exaggerating effect of the nearfield measurement, which assumes a 2π (half-space) acoustic environment. Even so, the Scorpio's upper bass is a little rich in absolute terms, its midbass shelved-down. A suckout is evident at 300Hz in the woofers' response, with only a gentle rollout evident above that frequency.

The midrange units differ a little, in that the lower driver gently rolls off above 450Hz while the upper driver continues upward in frequency to cross over to the tweeter at a measured 2.4kHz. The sum of the nearfield midrange responses (fig.3, blue trace) crosses over to the woofers at 150Hz, with an approximate second-order rollout broken by a notch at 93Hz. Higher in frequency, the upper midrange is impressively flat on the tweeter axis, but with an alarming suckout in the presence region. This lack of energy—presumably due to destructive interference between the tweeter and midrange-unit outputs on this axis, which is 41" from the floor—would help explain why the Scorpio's measured sensitivity was lower than the specified figure.

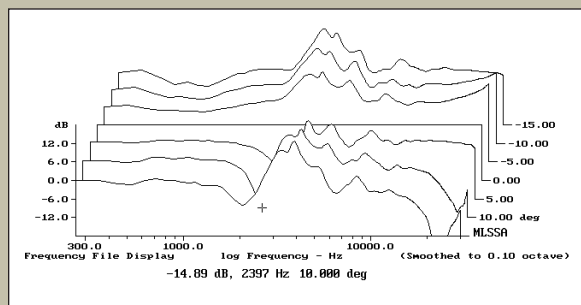


Fig.4 Audio Physic Scorpio, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 15–5" above axis, reference response, differences in response 5–15" below axis.

The depth of this suckout was very critical regarding the measurement axis. Moving the microphone 1" higher reduced its depth. How the Scorpio's anechoic response changes in the vertical plane is shown in fig.4, with the

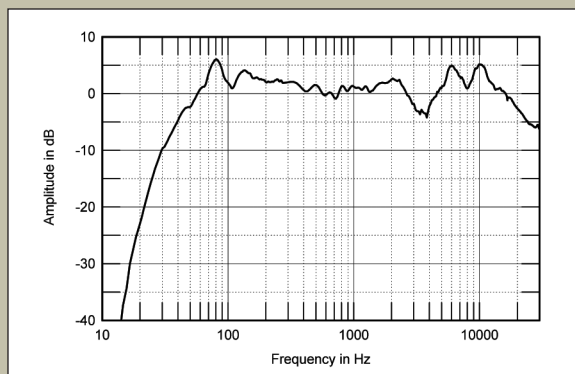


Fig.5 Audio Physic Scorpio, anechoic response on axis 43" from the floor at 50", averaged across 30° horizontal window and corrected for microphone response, with the complex sum of the nearfield drive-unit responses.

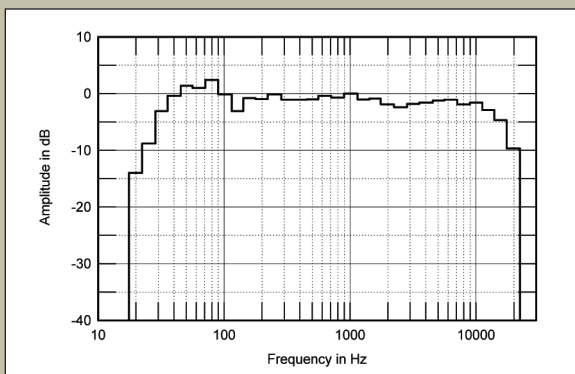


Fig.6 Audio Physic Scorpio, spatially averaged, 1/2-octave response in MF's listening room.

produced an unmistakably coherent picture. The musical message solidified, leaving only faint traces of mechanical artifacts that might have been described as *bass* or *treble*. Like any other speaker, of course, the Scorpio had a sonic signature. What's critical to a speaker's success is making sure that signature cuts across all design parameters. For example, if you're going to have soft and supple bass, you don't want to couple that with aggressively fast transients and spotlight high frequencies.

One reason the Vienna Acoustics Beethoven Concert Grand struck me as a success (see my review in the May 2006 issue) was its consistency: deli-

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 THE [SCORPIO] SEEMED
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 DEFENSIVE POSTURE...

cate, smooth, silky trebles; warmish mids; and supple, textured bass. From top to bottom, the Beethoven was less about attacks and more about textures and harmonics, though it provided sufficient balance in every parameter. Out of the box, the Scorpions were more about air, attack, transient detail, and

spatiality, but didn't fail to provide the harmonic underpinnings, the supple textures, the required delicacy to sound both exciting and inviting.

Before break-in—or after I'd gotten used to its sound, which is how those who don't believe in speaker break-in would characterize it—the Scorpio sounded somewhat tight on top and a bit brittle, mechanical, and stiff in the upper bass and lower mids. But after a week of heavy pounding, the speaker seemed to let go of its defensive posture and began delivering a purely musical picture.

But even in those first few encounters, the Scorpio did a very Virgo II-like thing: I'd be sitting in my listen-

tweeter-axis response subtracted from each trace so that just the changes in response are plotted. The crossover-region suckout starts to fill in as you move your ears above the tweeter axis, but deepens below that axis—which is perverse, considering that the average seated person's ear height is 36". But the treble response isn't very flat even above the tweeter axis, as can be seen in the response averaged across a 30° horizontal window 45" from the floor (fig.5). While the suckout is less severe, the top two octaves are elevated on this axis, which is why Mikey found the speaker to sound bright when he stood up.

What matters to the listener, of course, is the sound in the room. Fig.6 shows the spatially averaged response produced by the pair of Scorpions, measured at the ear position in Michael Fremer's listening room. Only a mere trace of the presence-region suckout can be seen, and other than a small peak in the region where the woofers had their nearfield peak and a slight lack of energy in the 125Hz band, the Audio Physics' room response is superbly flat from 100Hz to 10kHz. Above that frequency, the in-room energy drops due to the tweeter's limited dispersion.

The plots of the Scorpio's dispersion in the lateral plane—fig.7 shows the actual responses plotted from 90° on one side of the tweeter axis to 90° on the other, while fig.8 shows just the differences—reveal that the suckout in the

presence region is confined to a region 15° either side of the primary axis. At more extreme angles the speaker's output becomes quite flat, other than the usual rolloff in the top octave due to the dome tweeter's increasing directivity in this region. So while the direct sound of the Scorpio experienced by a listener sitting with his ears on or just below the tweeter axis will lack presence, the room's reverberant field

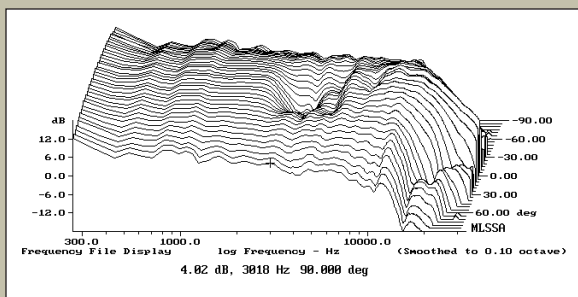


Fig.7 Audio Physic Scorpio, lateral response family at 50", from back to front: responses 90–5° off axis, tweeter-axis response, responses 5–90° off axis.

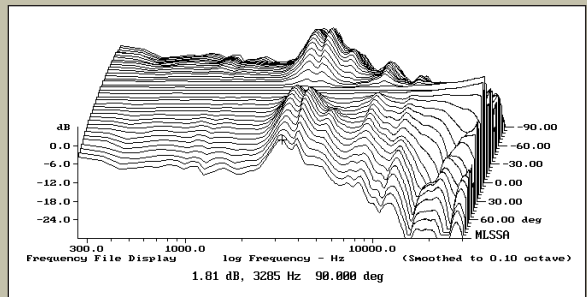


Fig.8 Audio Physic Scorpio, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off axis, reference response, differences in response 5–90° off axis.

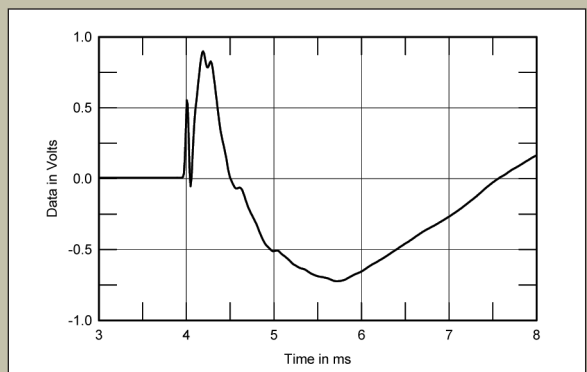


Fig.9 Audio Physic Scorpio, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

ing chair working on my laptop while casually listening, and suddenly something in the recording—often, a voice in a chorus—would sound so *real*, as if it were here in the room, that it would startle me, setting off a stand-and-fight rush of adrenaline.

Snap your fingers in front of your face while moving your hand from side to side and you have the Scorpio's message. It lays out the picture in authoritatively three-dimensional space on a wide, deep stage of surprising height for a speaker only 3.6' tall, providing the "Where'd the speakers go?" transparency I remember from my first encounter with the Virgo II.

I was moved early on to pull well-recorded live albums from the shelves. I was never disappointed by the Scorpios' ability to transform my listening space into the Village Vanguard, the Village Gate, Carnegie Hall, Town Hall, or any of the other New York City spaces in which those records were recorded, and in which I've often heard music live. The Vanguard is a cramped basement with a low ceiling and a triangular stage wedged into one corner. When you listen to Bill Evans' *Waltz for Debby* (45rpm LPs, Riverside/Analogue Productions), for instance, though it's closely miked, you can almost feel the walls closing in on the musicians. But when you do

catch sonic glimpses of patrons sitting at the tables, you hear them well back in space—at least through speakers able to define the space. The Scorpios did that job about as well as any pair of

(Reprise MS 2038), mastered by Bernie Grundman at A&M (look for the tiny "BG" scratched into the lead-out area). The Scorpios produced Mitchell's voice holographically and perfectly sized

THE SCORPIO **LAYS OUT** THE PICTURE IN **AUTHORITATIVELY** THREE-DIMENSIONAL SPACE ON A WIDE, **DEEP** STAGE.

speakers I've heard here, though of course they can't suggest the full volume of a truly large hall, such as Carnegie. For that you need a speaker capable of plumbing the depths, which the Scorpio does not. I'll take its tight, rhythmic delivery, minus the bottom octave or so, over speakers that go lower but lose control or sound bloated. Still, the Scorpio sounded good and reasonably smooth down to the mid-30Hz region.

After conquering space, the Scorpios put tightly drawn, optimally proportioned, three-dimensional images in that space. The illusion remained convincing even with the lights on, whether I was listening to a live or a studio recording. For me, great studio imaging is defined by my original mustard-label LP of Joni Mitchell's *Blue*

between them, forward of the plane described by their baffle fronts. On "My Old Man," I could "see" Mitchell's left and right hands separately moving up and down the keyboard on the left side of the stage, her pedaling producing sustain that shouldn't diffuse the focus of the hammer strikes. The Scorpios got this right, though they put the accent more on the transient and less on the sounding board. On "Carrie," I could hear the subtle but purposeful reverberant space longtime Mitchell engineer Henry Lewy put behind Russ Kunkel's drums. This perennial favorite album just keeps sounding more magical and more real as my system improves. I once thought Mitchell's voice sounded somewhat bright and antiseptic. It doesn't.

These are all small details of time and space that the Scorpios got so

measurements, continued

will have a full measure of energy in this region. The larger or more reverberant the room and the farther away the listener sits, the more the Scorpio's treble will sound neutrally balanced. Conversely, the smaller and deadier the room, the more the speaker will sound distant, lifeless, and hollow. But these plots do suggest that Scorpio owners experiment with toe-in to get a satisfactory tonal balance.

In the time domain, the Scorpio's step response on the tweeter axis (fig.9) indicates that the tweeter and midrange units are connected in the same, positive acoustic polarity. However, the continuation of the tweeter's step is in opposite polarity to the onset of the midrange units' step, hence the cancellation of their outputs on this axis in the region where they overlap. The woofers are connected in negative acoustic polarity, which, in conjunction with their physical setback, means that their outputs coin-

cide with the negative-going overshoot of the midrange units, correlating with the good frequency-domain integration of those units' outputs. The Audio Physic's waterfall plot on the tweeter axis (fig.10) is disturbed, of course, by the presence-region suckout, but is generally clean, though a low-level mode can be seen at 3.8kHz.

When I examine a loudspeaker like the Audio Physic Scorpio, I am compelled to wonder why the designer chose the specific drive-unit polarities that he did. Yes, the spatially averaged response in MF's room was superbly flat, but a conventional arrangement of drive-unit polarities would also have measured flat in-room, and would have made the speaker less fussy about setup and listening axis.

—John Atkinson

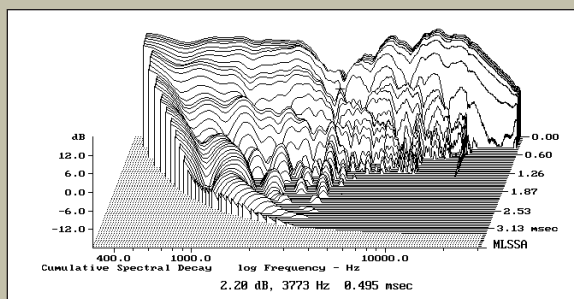


Fig.10 Audio Physic Scorpio, cumulative spectral-decay plot at 50" (0.15ms risetime).

right. What about the frequency balance? In this area, the first sample of Audio Physic's far more expensive Caldera sounded and measured surprisingly poorly, and the second sample did only somewhat better. Of course, I haven't seen John Atkinson's measurements of the Scorpio as I write this, but based on my weeks of concentrated listening, I'm sure the speaker's in-room response will be far more linear than the Caldera's. There was nothing mellow about the Scorpio's sound, but the Caldera's unrelenting brightness was nowhere to be heard—unless I stood up and positioned my ears well above the tweeter, when it sounded noticeably *bright*. I'm sure JA's measurements will show that.

When I sat down again, the Scorpio produced a smooth balance of satisfyingly deep, well-articulated bass free of overhang and bloat, a pleasing transition to the midbass (where its performance was far superior to that of the noticeably warmish Virgo II), a slightly cool midrange with a subtle accent in the presence region, and an airy, extended, but not silky-sweet top end. If the subtle midbass/midrange mechanicalness I noted during my first listen shows up in the measurements, I can say with complete confidence that, after a few more listening sessions, you won't notice it.

I thought the Scorpions offered a coherent, well-extended musical picture that any audiophile could work with to achieve sonic satisfaction. If you felt the sound a bit too "event-oriented," with more leading edge than you're comfortable with—in other words, a sound that shortchanged harmonics so that you were hearing too much bow and not enough wood, or too much throat and not enough chest cavity—you could easily compensate with a warmer phono cartridge or electronics.

I was quite satisfied with the Scorpio's sound as driven by Musical Fidelity's big kW solid-state monoblocks. I appreciated the speaker's bottom-end authority while not feeling short-changed by its mids and highs. The Scorpio was also quite happy with the Music Reference RM-200's 100Wpc; the tube amplifier's added richness complemented the speaker's snappy personality without diminishing its strong suits. Having heard some Prima Luna amps work magic with a pair of Sonus Faber Amati Homage anniversaries, I imagine they'd also drive the Scorpions exceptionally well.

IF YOU'RE GETTING THE IDEA THAT I REALLY LIKED THE AUDIO PHYSIC SCORPIO, YOU'RE CORRECT.

Beyond its pleasing tonal balance, the Scorpio offered dramatic macrodynamic performance for a relatively compact floorstander. High SPLs didn't compress the sound or change its basic tonal balance, yet it was also detailed, open, and transparent during low-level late-night listening sessions.

Conclusion

As loudspeaker prices rise, much of what you're paying for is bottom-end

ASSOCIATED EQUIPMENT

ANALOG SOURCES Continuum Audio Labs Caliburn turntable; Graham Phantom, Continuum Cobra tonearms; Lyra Titan (stereo & mono versions), Clearaudio Concerto cartridges.

DIGITAL SOURCES Musical Fidelity kW SACD player, Alesis MasterLink BPT-modified hard-disk recorder.

PREAMPLIFICATION Manley Steelhead, Einstein The Turntable's Choice phono preamplifiers; Musical Fidelity kWPC preamplifier.

POWER AMPLIFIERS Musical Fidelity kW monoblocks, Music Reference RM-200.

LOUDSPEAKERS Vienna Acoustics Beethoven Concert Grand, Wilson MAXX2.

CABLES Phono: CrystalConnect Piccolo. Interconnect: Acrolink 6100, Shunyata Antares, Transparent Audio Reference, Virtual Dynamics Master Series. Speaker: Shunyata Orion, Transparent Audio Reference. AC: JPS, Shunyata Research.

ACCESSORIES Continuum Castellon magnetic isolation stand, Finite Elemente Pagode equipment stands; Audiodharma Cable Cooker; Shunyata Research Hydra 2, Hydra 8 power conditioners; Acrolink isolation transformer; ASC Tube Traps, RPG BAD & Abffusor panels, Hallograph Sound Field Optimizers; VPI HW-17F, Loricraft PRC4 Deluxe record-cleaning machines.

—Michael Fremer

frequency extension and the ability to play loudly without strain. The Audio Physic Scorpio is a very capable \$6500/pair design that goes reasonably low while being free of cabinet-induced colorations, and can play at high SPLs without compression or changing its winning personality.

If you're getting the idea that I really *liked* this speaker, you're correct. Before sitting down to write this review, I conducted a listening marathon on both vinyl and CD, playing every kind of music, from Mozart's *The Magic Flute* (LP, Deutsche Grammophon 2709 017), to an advance CD of Cassandra Wilson's new *Thunderbird*, produced by T Bone Burnett (Blue Note 50254), to Broken Social Scene's sometimes excruciatingly *bright* album *You Forgot It in People* (LP, Arts & Crafts A&C 001), and even James Blunt's *Back to Bedlam* (CD, Atlantic 83752-2), which I actually like—call me gay. While no speaker will satisfy everyone, the Scorpio is one that hits all the right visual and sonic marks.

The Scorpio is graceful looking, well proportioned, solidly built, and meticulously finished. And if you like "seeing" your music, this speaker will not disappoint. In fact, it may sometimes scare the crap out of you, presenting recorded events as if they're actually occurring in your room.

Though the Scorpions' overall presentation will not suit all tastes, their spatial presentation was voluminous and crystalline-transparent, the transient performance fast and tidy, and the overall tonal balance free from discontinuities. Some will find it a bit forward and perhaps aggressive, but others will, like me, appreciate its exciting, involving sound. Because the Scorpio is free of audible frequency lumps and bumps, whatever its mild colorations—and every speaker is colored in one way or another—they will soon dissolve, leaving only musical satisfaction.

During the month-plus I had the Scorpions in my listening system, they did whatever I asked of them. Play loud and rock out? No problem. Put me in a familiar space? Sure thing. Show me a piano concerto and make it believable the same night I'd seen one live at Avery Fisher Hall? Piece of cake. Solo female singer? I believed. No loss of fine detail? None. Finally, a worthy replacement for the Virgo II? In my opinion, yes. The sweet spot of the Audio Physic line? Definitely. ■