

“... fantastic sounding ...

AWESOMELY POWERFUL ...

takes subwoofer performance to the next level and beyond.”

Reprinted with permission from



www.hometheatersound.com

“... exhilarating ... extended reach and power ... never lost its grip ... a dimensionality and a clarity that are rare in this frequency range ... true reference quality bass ...”

by Roger Kanno

The original Paradigm Servo-15 subwoofer had a long production run and reached near-legendary status as a reference-quality subwoofer that sold for a reasonable price. It had a massive 15" (380 mm) driver, and an amplifier rated at 400 W. Perhaps more important, its servo control constantly compared the driver's actual output to the input signal and corrected for any differences. This was said to reduce distortion and provide bass that was extremely accurate in addition to being very deep and very loud. The Servo-15 was an excellent subwoofer and is probably still being used by happy owners in thousands of high-quality home-theater and stereo systems.

In recent years, companies such as Hsu Research, SVS, and now Axiom—companies that sell only factory direct—have upped the price/performance ante of subwoofers. Even companies that sell their products through traditional dealer networks, including Paradigm itself, have steadily improved the performance of their subs. After many years in production, the Servo-15 was beginning to show its age. So, as is their style with product upgrades, late last year Paradigm quietly introduced the Reference Servo-15.

EYE OF THE STORM

The new Reference Servo-15 looks nearly identical to the original Servo-15, until you remove its grille. There you find what appears to be a 15" version of the high-excursion driver used in



Paradigm's Seismic subwoofer line, and seemingly identical to the driver found in their statement Signature Servo subwoofer. This overbuilt driver is unlike just about any other I have seen. Many companies boast about the quality and build of their drivers, but Paradigm's is unique. It has a fairly typical oversize voice coil, large dual spiders, and more than 2" of peak-to-peak excursion—but it's 15" in diameter, compared to the typical 10-12" drivers used by many manufacturers. It is also massively built, with a magnet that weighs an amazing 29 pounds. The cone itself is made of a mineral-filled copolymer polypropylene material with Paradigm's Resonance Control Ribs (RCR), and a massive surround to permit all that excursion. The chassis is made of heavy

die-cast aluminum. The Servo-15's driver makes most other subwoofer drivers look puny.

Not only does the Servo-15 have a state-of-the-art driver, it also uses a closed-loop servo mechanism with an "instrumentation-grade" accelerometer to reduce distortion. Paradigm claims that its servo system virtually eliminates audible distortion, even when the sub is played at its maximum rated output of 120 dB. The servo system basically senses the motion and position of the cone and compares it to the input signal. It then generates a correction signal based on the differences between the two and sends it to the amplifier, which corrects the driver's output, thus reducing distortion. The system is cooled by a large, extruded aluminum heatsink and Paradigm's proprietary Airflow Ventilation System (AVS); temperature sensors on the voice coil and amplifier, and a short-circuit protection system, can shut the sub down within 10 microseconds.

"... one of the best subwoofers available ... it is also my new reference."

The Servo-15 features a 1200 W RMS Ultra-Class-D digital switching amplifier with 1500 W of peak power (figures supplied by Paradigm) and a large 14-pound transformer. This appears to be the same amplifier that Paradigm uses in the Seismic and Signature Servo subs. The Signature version has a more stylish and heavy-duty back plate of machined aluminum, but the controls and connections on all these Paradigm subs look identical. There are single mono RCA and XLR inputs. Phase is continuously variable from 0 to 180 degrees, and the crossover is adjustable from 35 to 150 Hz. Unfortunately, there is no bypass for the crossover, though I had no problems setting it to its highest position and using the bass management in my Anthem D1 processor. There is also a Bass Contour control that can increase the output in the 60 Hz region. The power switch can be set to On, Auto On (which senses an input signal), or Off (which can use a DC trigger to control its operation).

The dimensions are nearly identical to those of the original Servo-15—it's a relatively large sub, though not enormous by today's super-sub standards. Even so, it's surprisingly heavy—114 lb (51.7 kg)—and its sealed enclosure is extremely solid and well braced. As with all Paradigm products, the fit'n'finish of the CNC-machined MDF enclosure is

excellent. The Servo-15 is available finished in high-quality vinyl veneers and comes with a removable IEC power cord. With its grille in place and only the faint glow of the blue power-indicator light to signal that it is operational, the Servo-15 is unobtrusive, and refreshingly clean and understated in appearance.

"... blended wonderfully ... so seamless — as though the bass was evenly distributed among all of the speakers ... went REALLY deep ... pumped out low frequencies that I couldn't hear but could definitely feel ... incredible amounts of bass ..."

THE SOUND AND THE FURY

It may have looked unassuming, but as soon I plugged in the Reference Servo-15, it became apparent that this was a fantastic sounding and awesomely powerful subwoofer. As expected, it blended wonderfully with my Paradigm Reference Signature S8 mains, Signature C5 center, and Mirage Omni 260 surround speakers. Even at high volumes, the transition between subwoofer and speakers was so seamless that it seemed as though the bass was evenly distributed among all of the speakers. And when the bass went really deep, the Servo-15 pumped out low frequencies that I couldn't hear but could definitely feel. As claimed, the subjective levels of distortion were extremely low. This made determining the sub's location by ear nearly impossible, even as it generated incredible amounts of bass and its cone exhibited an impressive amount of excursion.

"... amazing capabilities ... sounded awesome ... a real sense of the movement of the air ... flawless ... no mechanical noise or other unwanted sounds ... only deep, throbbing bass ..."

Dr. Chesky's 5.1 *Surround Show* [DVD Audio, Chesky CHDVD272] has reference quality bass that demonstrated the Servo-15's amazing capabilities. The percussion on "Fire Drums" bounced around the room with lightning speed that conveyed the tautness of

the drum skins as the sound changed pitch from beat to beat.

The deeper, more powerful drums on "Bass Drum March" sounded awesome, with a real sense of the movement of air. Finally, the "Heartbeats," each lower in frequency than the one before, were flawless right down to the final, 20 Hz tone, with no mechanical noise or other unwanted sounds. There was only deep, throbbing bass, which rattled several objects in the room.

Perhaps even more impressive than the Servo-15's performance with multi-channel audio was its ability to augment the low frequencies of the already spectacular Signature S8s on two-channel recordings. Although the S8s are nearly full-range, they still require a subwoofer to extend their bass down to 20 Hz with commensurate quality. With the Servo-15, there was no loss of quality, and the extended reach and power of the bass were exhilarating.

Dadawa's *Voices from the Sky* [CD, Warner Bros. CD 18768] has deep bass that I had not experienced to such a crushing degree before using the Servo-15 with the S8s. The drumbeats on the superdynamic "Seven Drums" were simply massive, with a room-filling quality that never lost its grip. The ebb and flow of the bass in the entire room was in absolute unison, with no hint of overhang or boom. Less bombastic bass on a smaller scale, such as David Piltch's double bass on Holly Cole's *Shade* [CD, Alert 6152810392], took on a dimensionality and a clarity that are rare in this frequency range. The instrument was placed precisely in the soundstage, with a clarity and definition that conveyed Piltch's artistry. Individual tones were wonderfully distinct, yet they flowed smoothly together as Piltch used the body of the bass as a percussive instrument and assertively snapped the strings, each snap followed by a rich, resonant note.

DEGREES OF EXCELLENCE

My choice for a high-performance subwoofer for both films and music has long been a result of its incredible ratio of price to performance. It gives many subs at even twice the price a run for their money. Although it subjectively kept pace with the Paradigm in terms of speed and lack of boom, it was easily bettered in every other category of performance. The Paradigm simply dug deeper, played louder, and flat-out, hands-down beat my reference sub in terms of bass quality. This is not surprising—the Paradigm costs slightly more than three

times as much. My reference subwoofer is easily more than enough subwoofer for the vast majority of home-theater owners, and is an outright steal at its factory-direct price. However, for those who desire true reference-quality bass, the Paradigm takes subwoofer performance to the next level and beyond.

"... a room-filling quality ... ebb and flow of the bass in the entire room was in absolute unison ... no hint of overhang or boom ... rich, resonant ..."

A more meaningful comparison was with Paradigm's own Reference Seismic 12. Other than the similar but slightly smaller driver, smaller enclosure, and lack of servo drive, the Seismic 12's specifications are similar to the Servo-15's.

But even with the aid of its two passive drivers, the very impressive Seismic 12 could not equal the performance of the Servo-15. Although there was plenty of low-frequency rumble, individual bass notes from the Seismic 12 were less distinct. It did not sound boomy by any means, but there was some overhang with the massive drum whacks on Dadawa's aforementioned "Seven Drums" when compared to the Servo-15.

The Seismic 12 had no difficulty reproducing all of the "Heartbeats" from Dr. Chesky's 5.1

Surround Show. But again, there was slightly less differentiation in pitch between tones, and it could not play quite as loud. However, the Seismic 12 has the advantage of being much smaller than the Servo-15. For those for whom size and aesthetic considerations are important, the Seismic 12 will provide most of the performance of the Servo-15 in a very compact enclosure. For those who want one of the best subwoofers available, the additional cost and floor space required for the Servo-15 are definitely worthwhile.

"... ability to effortlessly reproduce absolutely crushing impacts from movie soundtracks as well as the most subtle bass from acoustic instruments ..."

Other than its finely crafted, curved cabinet finished in real-wood veneer and its machined-aluminum rear panel, the specifications and appearance of the Paradigm Signature Servo subwoofer (price dependent on finish) are nearly identical to those of the Servo-15, and I had difficulty hearing any differences in their performance. At times I thought the Signature Servo might have had a slight edge over the Servo-15, but that thought was fleeting. The Signature Servo is a gorgeous-looking subwoofer whose premium high-gloss finishes will beautifully complement the other speakers in Paradigm's Signature line. The Servo-15 seems to provide essentially

the same performance in a more modest-looking package.

A NEW PARADIGM

Paradigm's Reference Servo-15 breezed through everything I threw at it with total composure and a sound that lacked noticeable coloration or distortion. Because of its ability to effortlessly reproduce absolutely crushing impacts from movie soundtracks as well as the most subtle bass from acoustic instruments, I quickly grew accustomed to the substantial improvements it brought to my system. It costs considerably more than its predecessor, but when you consider the amount of performance it delivers, the Servo-15 is an excellent value for anyone wanting a reference-quality subwoofer at a sensible price. It is currently my favorite subwoofer of the numerous high-performance, high-value subs that I have recently auditioned. It is also my new reference.

"... dug deeper, played louder, and flat-out, hands-down beat my reference sub in terms of bass quality ... breezed through everything I threw at it with total composure and a sound that lacked noticeable coloration or distortion."