

“**OVER-THE-TOP IMPRESSIVE ...**

**... amazingly balanced ... limitless depth of bass**

**... awe-inspiring dynamics.”**

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*“Phenomenal speakers offering a vast dynamic range mated with nimble highs and full, deep bass ... smooth transitions for multichannel audio and movies ... fantastic ... awesome ... I can’t imagine needing or wanting more ... a theater experience rarely found at any price, let alone what these sell for.”*

by Ken Taraszka, MD

In an ideal world, we would all have hundred-thousand-dollar-plus systems in our home theaters, complete with all of the latest goodies. Most of us make do with what we can afford and accept compromises for our given price points, with a few indulgences mixed in when possible. The Paradigm Studio series of loudspeakers is designed to eliminate, if not drastically reduce, any compromise you have to make for a true reference-level home theater system at an affordable price. Paradigm has been a leader in high-performance loudspeakers since 1982, and has recently released the fourth generation of their critically acclaimed Reference Studio loudspeakers. I received for review the Studio 100 floor-standing speakers and two completely new additions to the Studio lineup, the Studio CC-690 center channel and Studio ADP-590 adapted dipolar surrounds. Paradigm also sent along a Servo-15 subwoofer to complete this 5.1 package.

While the Paradigm Studio line has been highly regarded and well reviewed, Paradigm has not sat idly by collecting checks from dealers. The newest version of the Studio line now employs the G-PAL gold-anodized pure-aluminum dome tweeter previously found only in their Signature line, a new S-PAL satin-anodized pure-aluminum midrange and bass/midrange cones and new bronze-anodized cast aluminum driver chassis, top plate, kick plate and feet to enhance the Studio 100’s physical appearance. The new Studio center channels are three-way designs to improve off-axis performance and dynamic range. The use

of similar drivers in all the Studio speakers allows for precise timber matching; all the drivers in the Studio line are mounted using Paradigm’s IMS/Shock-Mount system that employs a unique butyl rubber system to help decouple the drivers from the cabinets.

The new Studio 100 is a sizeable speaker measuring 44-1/2” (113 cm) inches tall, 8-1/4” (21 cm) wide and 17” (43.2 cm) deep. It has a five-driver, three-way design housing with, from top to bottom, a 1” (25 mm) G-PAL tweeter with a chassis that extends in a slightly built-up dome onto the top of the speaker, a 7” (178 mm) S-PAL midrange driver then three 7” (178 mm) mineral-filled polypropylene bass drivers, the front port and an arched kick plate. The driver chassis are all 7/16” (11 mm) thick and secured to the speaker cabinet with multiple hex bolts; the tweeter and port chassis are textured. All the driver chassis, the kick plate and feet attachments are in a beautiful new bronze-anodized aluminum



Studio 100

finish. This process gives a subtle metallic-green hue to the hardware and the color was so utterly cool to look at that I found it hard to keep the grilles on. The multitude of drivers and the cool frames made for a great look alone, but the way it all is put together adds a degree of industrial flair that will surely appeal to any man. The speakers have a monolithic appearance, with only a slightly domed top, with outreaching footer attachments to break the otherwise pillar-like look. The sides and back of the speaker come in Cherry, Rosenut, or Black Ash finish. The top is made of an arched charcoal rubber. Two pairs of gold-plated five-way binding posts are set into a plastic cup with accompanying gold-plated jumpers on the bottom rear, allowing for bi-wiring or bi-amping if desired. Four feet extend out from the sides of the base of the Studio 100 and can use either included spikes or rubber-tipped feet to help level and isolate the speaker from the floor. The grille runs almost the entire height of the front and is rounded off on the top and bottom covering the tweeter on top and transitioning into the kick plate on the bottom. The grille is solidly secured at multiple points and has a lattice-work of plastic bars inside to keep its slightly arched shape; this is absent over the tweeter to minimize interference. Paradigm quotes a frequency response of 44 Hz to 22 kHz with low-frequency extension at minus three decibels to 28 Hz and a sensitivity of 91 dB in room. The speakers have an impedance of eight ohms and weigh in at 81 pounds apiece.

*"... scratching of the frets — seemed so real ... guitar came through with a sharp and plucky nature ..."*

The new Studio CC-690 center channel is also pretty large, measuring 9-1/2" (24 cm) tall, 36" (91.5 cm) wide (without the grille or feet attached) and 15-1/2" (39.5 cm) deep. A six-driver, three-way design, the Studio CC-690 comes magnetically shielded and houses a 1" (25 mm) G-PAL tweeter above a 4-1/2" (115 mm) S-PAL midrange driver. These drivers are flanked by two 7" (178 mm) S-PAL bass/midrange drivers and then two 7" (178 mm) polypropylene bass drivers. The same external feet and spikes found on the Studio 100 are attachable to the center. Alternatively, it can be stand-mounted. Two sets of gold binding posts and jumpers are present for bi-wiring and bi-amping this speaker as well. The CC-690 has an eight-ohm

impedance and frequency response of 53 Hz to 20 kHz, with bass extension to 38 Hz at minus three decibels and a sensitivity of 91 dB in room. Available in Cherry, Rosenut, or Black Ash finish, the center weighs 69 pounds. The center channel is the most important speaker for movies and multichannel audio, and the fact that Paradigm has made a center similarly sized to their top-of-the-line fronts shows me they are clearly in touch with the evolving A/V market.

*"... bass produced by the Studio 100's impressed — going to the lowest depths needed for anything except perhaps organ music ... I never felt shorted of bass ... showed their ability to handle serious bass and complex passages simultaneously ... easily handled the keyboards, vocals and the subtle strumming of the guitar, while keeping the bass solid."*

The new Studio ADP-590 rear/surround speakers can be placed on stands or wall-mounted with the included hardware. While nowhere near the size of the other speakers in this system, they house similar drivers in a smaller package. These adapted dipolar speakers have 1" (25 mm) G-PAL tweeters and a 4" (115 mm) S-PAL midrange driver facing out of each side, and a single 7" (178 mm) forward-firing polypropylene bass driver, measuring 8-3/4" (22 cm) tall, 14-3/4" (37.5 cm) at their widest point, 6-5/8" (17 cm) deep and weighing 17.5 lb (7.9 kg) each. Quoted frequency response is 85 Hz to 20 kHz, with bass extension to 60 Hz at minus three decibels and an impedance of eight ohms. They are available in Black Ebony or White and are single-wire only.

Completing this package is the Servo-15 subwoofer, a beast of a speaker, weighing in at 114 lb (51.7 kg) and measuring 20-1/8" (51 cm) high by 18-1/8" (46 cm) wide and 21-1/2" (55 cm) deep. The Servo 15 is basically a box with the top side edges cut off slightly. This angled edge makes its way to the grille which covers the entire front of the subwoofer and continues the angled edge across its top as well. Housing a single high-excursion 15" (380 mm) driver in a sealed enclosure with a

built-in 1200-watt class D amplifier capable of 4500-watt peaks, it can reproduce bass down to 12 Hz at minus three decibels. The subwoofer offers plenty of flexibility and all controls are located on a large black panel on the lower rear of the speaker. From left to right, you find the power switch and power-on options; the subwoofer can be left on at all times or triggered either by the presence of an audio signal or 12-volt triggers. Both balanced and single-ended low-level inputs come next with a switch to select your choice. Next are a variable phase alignment dial from zero to 180 degrees, an adjustable cut-off frequency dial from 35 Hz to 150 Hz to aid integration with your main speakers, an adjustable contour dial of zero to plus six decibels at 60 Hz to aid with integrating the sub into different rooms and, finally, a main level control. The power cord attaches to the lower left of the panel. The subwoofer's amplifier is thermally protected and has electrical shorting protection as well. The Servo-15 is available in Cherry, Rosenut and Black Ash finishes.

*"... the Studios did an amazing job keeping all these elements separate and powerfully displayed — even at the 100 dB level ... Bass was so impressive that I checked twice to make sure I wasn't using the subwoofer ... Bass was simply felt as well as heard."*

#### SET-UP

As I was walking through the operating room one afternoon, my cell phone rang. "Ken, did you buy something? There's a truck outside ..." It was my wife, and I had to think quickly. Had I bought something that needed to be freighted and I somehow forgot? The new Paradigm Studio speakers were on their way to review, but they were almost a week earlier than I expected. That must be it. I told my wife to pull my car out of the garage and ask the delivery men put the pallet there for the time being. My weekend plans had just been made for me. Sure enough, when I got home, a large pallet of speakers was in the garage, and my convertible in the driveway. Each speaker came in its own box. The fronts, center and subwoofer came in a beautiful deep ruddy Rosenut finish, with the surrounds in Ebony plastic. Each were packed in high-density foam

and wrapped in heavy-gauge clear plastic to protect their finish in transit. The subwoofer was packed with multiple layers of cardboard reinforcement; the boxes for the center and fronts also had additional reinforcements of the long edges with cardboard inserts. All the speakers were solidly constructed and had excellent fit and finish. The main speakers came with both metal spikes and pre-mounted rubber feet to level them. The center came with the slightly outboard feet and spikes included. For my tiled floor, I kept the rubber feet in and was very happy with how easy they were to adjust. My floor is irregular, so during my set-up, I frequently moved the main speakers around. The rubber-tipped feet were a breeze to use each time I had to re-level them. This can often be a tedious task, but the Paradigms' feet allowed easy adjustment and stayed where they were set down, making planting the speakers on my floor a piece of cake.

I placed these speakers into my reference home theater system, comprised of a Meridian G98 DH, Teac Esoteric DV-50s, Sony BDP-S1 Blu-ray player and Toshiba HD-XA1 HD DVD player all running through my Meridian 861v4 AV preamp to Proceed HPA 2 and HPA 3 amplifiers. The front three speakers were wired with Transparent Reference balanced interconnects and single-wire speaker cable, with Transparent jumpers. All power was run on dedicated lines through Chang Lightspeed HT 1000 and 9900 amp power conditioners; the sub was connected to its own dedicated 20-amp circuit.

*"... kept the bass guitar and drums clear while the lead guitar was slamming ... never lost step with the emotion of the music ... effortlessly demonstrating the powerful bass this system is capable of producing."*

The center channel is large, and almost didn't fit under my television; both the height and width were extremely close. I couldn't attach the feet pods, as the unit then wouldn't have fit. Instead, I added rubber pads and positioned it beneath the display. I got a surprise when attaching the grille, which added another inch to the width. I pulled the speaker to the front edge of my stand and it just fit. The surrounds

were placed on Lovan® speaker stands off to the rear and behind the listening position. As they were dipolar surrounds, I ended up with them further behind the listening position than the direct radiators I usually have. After some experimentation with movies and audio, I settled on a place three feet behind the listening position and about 30 degrees back. This gave me the best effects for both movies and multichannel audio. I tried several different placements for the Servo-15, but ended up with it in the rear right corner of my room, a place most subwoofers like. I used the balanced low-level-in and settled on just the slightest bump at 60 Hz in its final position.

*"The volume level attainable from these speakers is insane ... can easily surpass your ears' comfort level while keeping it all together musically."*

Trimming in speaker size on the Meridian 861 is not like that of most processors. Rather than just small, medium or large options, the 861 allows a continuum of size, and the sub can be set anywhere from zero (the smallest) to 30 (largest). When I first started to trim it in, I had to stop and remove items from the room, for as I increased the size, secure items began to rattle and shake. Finally, after removing some artwork, candles and other trinkets, the room could handle the bass from the sub and I was able to easily assign it to the maximum size the 861 allows without appreciable distortion.

I initially placed the Studio 100's where my Canton Vento809 DC's live, and was unimpressed. After playing around with them, it quickly became apparent that these speakers need more space behind them to let the bass open up. I ended up with them 40" (102 cm) from the back wall. I had them almost straight forward, with just a slight toe-in, which let them reproduce full bass while offering the best imaging. They took a while to burn in and really opened up and smoothed out over the first 50-plus hours. Then I tweaked them to their final position, ensured they were level in all planes, recalibrated their size and position, as well as levels in my processor, and set out to do some critical listening.

#### MUSIC AND MOVIES

Throughout the burn-in period, the bass produced by the Studio 100's impressed me, going to the lowest depths needed for anything except perhaps organ music. While I had

experimented using the subwoofer for some of my two-channel listening, I didn't feel it was necessary, so I didn't use it; I never felt shorted of bass. I turned to Soul Coughing's *Irresistible Bliss* (Warner Brothers), an amazing ska album with plenty of variety to test the Paradigms. "Super Bon Bon" showed their ability to handle serious bass and complex passages simultaneously, while "Soft Serve" had the deep bass lines and real-life vocals the band is known for. The tone of this song is much different than the remainder of the album. Keyboards jump in and out, while the song carries a deep funk groove to it. The Studio 100's easily handled the keyboards, vocals and the subtle strumming of the guitar, while keeping the bass solid. The Paradigms kept me truly entertained throughout this song and, for that matter, the rest of the album. The scratching of the frets on the start of "Soundtrack To Mary" seemed so real; the guitar came through with a sharp and plucky nature to it. The bass was full and deep. Though slightly less taut than from my reference Canton 809DCs, the Studio 100's reproduced deeper bass.

*"... rears filled the soundstage with enticing surround ... lively and fun ... [sound] seemed to come from everywhere ... deeper tones powered through ... powerful surges in dynamics were no problem ... smooth transitions from speaker to speaker ... an amazingly balanced system ... the surrounds gave loftiness to the surround mix ..."*

Nickelback's album *All the Right Reasons* (Roadrunner Records) is an album full of powerful drums and guitar, so I figured it would be perfect for the Studio 100's for some more two-channel listening. The opening song on the album, "Follow You Home," begins with fast drums and rapidly expands with brazen guitar. Chad Kroeger's vocals start quietly but increase in intensity and the Studios did an amazing job keeping all these elements separate and powerfully displayed, even at the 100 decibel level. The bass was so impressive that I checked twice to make sure I wasn't using the subwoofer. Bass was simply felt as well as heard. "Animals" is full of fast transitions and, again,



the Paradigms easily covered anything this song had and kept the bass guitar and drums clear while the lead guitar was slamming. “Rock Star” always reminds me of Kid Rock and has a somewhat different feel to the rest of the album. The mellowness of the song was done well and I couldn’t help tapping my feet and singing along.

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I got home from a particularly bad day at work and wanted some angry music to clear my head, so I put on The Sex Pistols’ *Never Mind the Bollocks* (Warner Brothers). Growing up outside of New York City, I got to see many of the original punk bands, and the Pistols were truly a sight. “Submission” gives me all the elements I want from punk: forward vocals, deep bass and raging guitar that had to be played loud. The Studio 100’s easily handled the brazen guitar, brilliance of the cymbals and Sid’s thunderous, sloppily played bass at extreme volumes. Johnny Rotten’s voice had an eeriness to it I loved. “Pretty Vacant” starts with a lone guitar and quickly builds in intensity to full-on punk angst. The Studio 100’s never lost step with the emotion of the music, effortlessly demonstrating the powerful bass this system is capable of producing. The volume level attainable from these speakers is insane, and can easily surpass your ears’ comfort level while keeping it all together musically. I couldn’t have asked for a better speaker for this music and my mood that day.

Moving onto multi-channel audio, I cued up the SACD of Aerosmith’s *Toys in the Attic* (Sony). “Uncle Salty” had a great feel to it while giving me the unfaltering bass I had come to expect of the Paradigm system. Steven Tyler’s voice had a slight edge to it, but its forwardness worked well with this old classic. “Walk This Way” kept me rapt in bass, while the rears filled the soundstage with enticing surround.

On “Big Ten Inch,” the Paradigms easily kept the almost flapping sound of the song lively and fun with full surround.

I next chose the SACD of David Bowie’s *The Rise and Fall of Ziggy Stardust and The Spiders From Mars* (EMI Records). During “Soul Love,” the clicking seemed to come from everywhere while the deeper tones powered through, the balance of these speakers was perfect. Rick Wakeman’s harpsichord on “It Ain’t Easy” had a wonderful delicacy to it with its tinny notes, while the powerful surges in dynamics were no problem for the Paradigm system. Background vocals filled the room, while the lead came from up front and stayed there. “Ziggy Stardust” showed great depth, while demonstrating the exceptional balance of this system with smooth transitions from speaker to speaker. The guitar started off far to the right, while David Bowie’s voice seemed to come from above me; clearly, this is an amazingly balanced system. The surrounds gave loftiness to the surround sound mix that was enjoyable. Though not as precise in imaging for multichannel audio as the direct radiators I am used to, they mated perfectly with the rest of the system.

*“I was constantly impressed by the Servo 15’s ability to completely dominate the bass ... handled anything thrown at it and went as deep as you could hear, or more often feel, making the impact of the gunshots and bombs incredible.”*

For movies, I first turned to *Pearl Harbor* (Buena Vista Home Entertainment) on Blu-ray via my Sony BDP-S1. This film covers multiple subplots in great detail and offers everything from quiet love scenes to full-on war sequences. The delicateness of the quiet passages were as well-handled as the massive impact of explosions. Details like the spinning down of the crop duster in the beginning of the film were well-placed and followed the screen image perfectly. Surround effects were full, even from the smallish Studio ADP-590 speakers. In the early scene when Walker (Josh Hartnett) and McCauley (Ben Affleck) are playing chicken, the surround effects were perfectly placed and the deep tones of the plane engines were excellent. Voices and subtle music filled the room during the medical

examination and made for an unusual realism to this scene. Transitions were perfect when the Japanese came flying in and the subwoofer filled in adeptly where the rears left off. I was constantly impressed by the Servo-15’s ability to simply dominate the bass. I do not mean the Servo overpowered the bass—it simply handled anything thrown at it and went as deep as you could hear, or more often feel, making the impact of gunshots and bombs incredible.

*“... to really test bass, I have two words for you: King Kong — the Studio system blew out this remake ... the Paradigms held tight and shook everything, including but not limited to my walls, couch and even appreciably shook me ... the throatiness of Kong’s voice was unbelievable through this setup ... surround effects moved across the room effortlessly ...”*

My next pick was *Van Helsing* (Universal Studios Home video) on HD DVD. The story concerns a mythical character, played by Hugh Jackman, who hunts down monsters and is called to Transylvania to fight Dracula. The movie starts off as the crowds encroach on Victor Frankenstein’s castle. In this scene, the lighting strikes and bang of the battering ram on the door were amazingly contrasted by subtle conversations. The claps of thunder and the roar of the crowd had awe-inspiring dynamics. The breaking of the absinthe bottle



Studio ADP-590



Studio CC-690



Servo-15

was well-placed and crystal clear. During the Paris scene, the bass in the background was impressive, while the chiming of the bells at Notre Dame rang true. The ensuing scene with Mr. Hyde's jumping into the picture offered more deep and resounding bass, while the classical music in the background filled the soundstage. While I agree with Mr. Hyde that we all have our little problems, this system showed none in its reproduction of the film.

The Studio 100's clearly impressed me, but to really test bass, I have only two words for you: King Kong. *King Kong* (Universal Studios Home Video) on HD DVD was my be-all, end-all test for the Paradigm system with movies. The Studio system blew out this remake. When the crew makes it into Kong's territory on Skull Island, the bass of this film can easily undo many if not most systems, but the Paradigms held tight and shook everything else, including but not limited to my walls, couch and even appreciably shook me. The throatiness of Kong's voice was unbelievable through this set-up and, thanks to the system's exceptional integration, surround effects moved across the room effortlessly. While the fronts can easily go deep, the sub clearly reinforced them and made everything seem truly larger than life throughout this film. When the camera crew gets run down by dinosaurs, the system was simply over-the-top impressive. The roars of the dinosaurs had an intense depth to them, while the strings of the background music stayed smooth and clear. The guttural nature of Kong's grunts was so real it seemed like the large ape had invaded my room.

#### THE DOWNSIDE

The Studio 100's are not small, and need a good amount of space behind them to really show off their bass capabilities. If you need something to go close to the front wall, the Studio 100's may not be your best choice. However, Paradigm has a variety of speakers suited for such an occasion. The center is three feet wide before you put the grille and feet on, and just over that width afterwards, so its size can cause placement issues, especially in small or medium-sized rooms. The bass produced by the mains and especially the subwoofer is extreme, so if your room is poorly constructed, or you share a wall with neighbors, you might want to reconsider these bass monsters for something further down in the Paradigm line. Looks always are subjective. I liked the industrial look of the speakers with the grilles off, while my wife liked the grilles on. Obviously, you'll need to make your own judgment here. Though not quite as smooth

in the upper end or as tightly defined in the bass as my reference speakers, the differences are subtle and the Studio 100's offer amazing lower bass reproduction at less than half the reference speakers' price.

*"I doubt you could find a better speaker system at this price, though you could easily spend more on a lesser one ... go listen to the Paradigms and stop accepting compromises."*

#### CONCLUSION

The Studio 100's are phenomenal speakers, offering a vast dynamic range mated with nimble highs and full, deep bass. The matching Studio CC-690 center and Studio ADP-590 surround/rear speakers blend together seamlessly, giving smooth transitions for multichannel audio and movies. Paradigm produces this system almost entirely in-house and has done a fantastic job with them. The Servo-15 subwoofer offers a multitude of options for control and connection, making it easy to integrate into this or any system and/or room. The seemingly limitless clean bass produced by this sub is awesome and I can't imagine needing or wanting more. Even on my most brutal tests, the Servo-15 never flinched; it simply shook everything around it. I was constantly impressed during my movie sessions with these speakers. While I've heard far more expensive speaker systems, few bettered the Paradigms for theater sound. Their slightly forward nature, combined with limitless depth of bass, made for a theater experience rarely found at any price, let alone what these sell for.

When shopping for audio gear, we all have our price points, and accept the limitations they impose on us. This new Paradigm system can change that, offering huge performance at a realistic cost. I doubt you could find a better speaker system at this price, though you could easily spend more on a lesser one. If you are in the market for a new speaker system for your home theater, go listen to the Paradigms and stop accepting compromises.