

“... **A BIG SUCCESS**

... powerful, airy, very spacious and dynamic.”

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by Christopher Zell Ph.D.

INTRODUCTION

There are a number of very successful and highly respected loudspeaker designers and manufacturers who can trace their origins to the National Research Council (NRC) of Canada. Although Paradigm no longer uses the NRC testing facilities, their design philosophies have their roots in the groundbreaking research performed at the NRC in the 1980s, dealing with listener preferences and their relationships with various loudspeaker measurements and traits. The highly successful Paradigm Electronics Inc. is now one of the largest speaker manufacturers in the Western Hemisphere, with some of the most advanced and extensive test facilities anywhere. The complete home theater loudspeaker system reviewed here utilizes the Studio 100s as the cornerstone main loudspeakers, a single Studio CC-570 center channel, and a pair of Studio ADP-470s as rear surround speakers. I originally intended to include a pair of Paradigm's Seismic series subwoofers, but they were not available in time for this review. For all 5.1 music and DVD sections, I employed a very capable

Studio 100



performer that certainly augments the Paradigms in a favorable manner.

DESCRIPTION

The floor-standing Studio 100 is at the top of the Reference Studio line. This is a major change from previous versions, both aesthetically and in terms of transducers and configurations. The cabinet is more attractive and unobtrusive in my opinion than earlier iterations, measuring a slender and graceful 8-1/4 inches wide by 44-1/2 inches high by 17 inches deep. The slightly smaller Studios 100s are lighter than their predecessors, but still weigh a substantial 81 pounds each. When I tapped the side panel, however, I did not find them to be as inert as some other loudspeakers I have seen, though this is not necessarily an indicator of sound quality. The Paradigms are still a three-way design, with a flared

port approximately 3-1/2 inches in diameter located near the bottom of the front panel. Starting at the top, a 1 inch satin-anodized pure aluminum dome tweeter sits just under the curved top panel, followed by a 7 inch MLP™ mica-polymer cone midrange driver. A trio of 7 inch woofers located above the port completes the driver complement. Four outrigger feet with optional spikes or rounded rubber tips gently curve out from the base, forming a wider, stable and attractive interface to the floor or carpet. The combination of the feet and the curved top makes for a softer, less boxy feel. Two sets of very high-quality binding posts on the lower back panel allow bi-wiring or bi-amping if desired. Angled shorting strips that fit neatly between the binding post pairs are included for normal, single cable interfacing. The Studio 100s come with black grilles and a variety of finishes, including Sycamore, Cherry, Rosenut and Black Ash. I was very pleased with the look of the Black Ash review samples, which received a number of positive comments from various visitors over the last few months.

"... detailed, sparkling and airy, the best highs I can recall hearing from any previous Studio series loudspeaker ... mid frequencies were open and effortless ..."

The three-way CC-570 is the top-of-the-line center channel speaker in the Paradigm Reference Studio series. It is physically large at 26-1/2 inches wide by 9-1/2 inches high by 13 inches deep, and weighs a fairly hefty 45 pounds. The sealed box design features dual seven-inch mineral-filled polypropylene cone woofers, flanking a vertically aligned one-inch satin-anodized pure aluminum dome tweeter and a four-inch MLP™ mica-polymer cone midrange driver. This arrangement normally results in better horizontal dispersion than a sideways oriented woofer-tweeter-woofer configuration, which is extremely important for a center channel loudspeaker. The rather boxy cabinet's looks are somewhat softened by the convex black grille that also features curved outer edges. Outrigger feet similar to the Studio 100s are supplied, which can be installed in

various combinations to point the loudspeaker axis directly towards the listener, whether straight ahead, up or down. Threaded spikes with pointed or rounded rubber tips are provided, allowing for a variety of mounting options. The bi-wire and bi-amp-friendly CC-570 features the same excellent dual binding post pairs as the Studio 100s. It is available in four finishes, Sycamore, Cherry, Rosenut and Black Ash, which was the review sample's finish. Paradigm also offers an optional stand for the CC-570, the J-18C.

The ADP-470 surround loudspeakers are designed to be placed directly along side or rear walls. They are timbre-matched to the Paradigm Reference front and center channel loudspeakers. These four-driver, two-way units are enclosed in a symmetric triangulated cabinet, with an identical woofer and tweeter on both the forward and rear faces. The crossover configures them as bipolar below approximately 150 Hz for omni-directional bass, and as dipoles at higher frequencies. The ADP 470s are also capable of being bi-wired or bi-amped, a rare feature for a surround loudspeaker. Grille cloths cover the driver cabinet sides, and the outward facing edges are rounded, making them quite attractive and room décor-friendly. The 12 inches high by 13 inches wide by 7-7/8 inches deep ADP-470s weigh 26 pounds each, and are available in Black Ebony or White finish.

SET-UP

As a starting point, I placed the Paradigm Reference Studio loudspeakers in my main home theater system in the same locations normally occupied by my reference system. While I was immediately impressed with many aspects of the sound, overall it did not completely jell or cause my jaw to drop. Indeed, this was partially based on my very high expectations, but I felt strongly that they needed some work and break-in to fulfill their potential and my hopes. I used them for a number of weeks without paying critical attention, playing a lot of movies and concerts, using them as much as possible to break them in before I formed any detailed sonic impressions. Things eventually improved and evolved. The highs largely lost any fatiguing bite and the midrange

was smooth and musical. Still, there were some things that were not quite right, so I started with stereo sources played through the cornerstone of the home theater system, the main left and right Studio 100 loudspeakers. First of all, the highs were not as detailed as I expected, present but not spectacular. As a friend of mine who is a loudspeaker designer and I sat in the primary listening chairs one afternoon, we noticed that the tweeter axis was actually pointing above our heads. We used the Paradigm-supplied spikes and raised the rears of the Studio 100s until our ears were directly in line with the gap between the midrange and tweeter. Now the highs were back, detailed, sparkling and airy, the best highs I can recall hearing from any previous Studio series loudspeaker.

"The Paradigms convey the magic and uniqueness of the moment ..."

Moving all the way down in frequency to the bass, I was dismayed by the lack of low-end authority I was experiencing in my listening position. Three woofers ought to have some power and impact, so where was it? Standing right next to the Studio 100s, there was a lot of clean bass content, so I tried moving them a full foot toward the back wall. Pow, now I had some low end, the music no longer lightweight and wimpy, but the low end came at the expense of the midrange quality. It sounded like the Paradigms were playing down a long hallway, the presentation a bit confused during complex musical passages. So I moved the speakers approximately six inches into the room, halfway back to their initial position. A surprisingly large improvement was immediately obvious. The bass was still there, actually in better balance, and the mid frequencies were open and effortless once more. Now there was something going on, my feet were tapping and I was starting to plan which music I wanted to hear next. Touching the cabinet during loud, bass heavy passages, I did notice some vibrations on the side edges of the cabinet, particularly below the port level. I cannot say for certain, but this may have been the cause of some lack of definition I occasionally noticed in the lower octaves. Keep in mind that the enclosure in general was very

sturdy and solid, and that we are talking about a large loudspeaker pair retailing for a surprisingly low price, so a completely inert cabinet is not a reasonable expectation. The final position placed the Studio 100s at 42 inches from the back wall, 39 inches from the sidewalls, and 8-1/2 feet apart. I sat approximately 11 feet from the loudspeakers, which were toed in so that their axis intersected a few feet behind my head, allowing me to see the inside cabinet edges.

"... vocals showed off the CC-570 center channel's dynamic capability and synergy, clearly integrating the video and audio stimulus."

Perhaps I went on a little too long in my description of the Paradigm 100's tuning odyssey, but the point I wanted to make is that it can take significant effort to get loudspeakers to work in a given room. Sometimes you get lucky and it works right off the bat, but more often than not, the best spot is not exactly where you think it will be or, unfortunately, where the room arrangement dictates.

"The ADP-470s excelled ..."

The other loudspeakers were much easier to place effectively. The CC-570 center channel ended up below my projector screen, three feet from the back wall, 20 inches from the floor and tilted aiming at the listener's ears. The ADP-470 surrounds were placed on small, adjustable shelves slightly behind and two feet above my head. The subwoofer ended up three feet



ADP-470

diagonally out from the right front corner. All loudspeakers were designated as "small" in my processors, with everything below the 80 Hertz crossover frequency sent to the subwoofer. Of course, the crossover was removed from the circuit and the Studio 100s were switched to "large" whenever I wanted to listen in straight two-channel mode with stereo sources.

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MOVIES

One of the regrets of my youth is never taking the initiative to see Led Zeppelin in concert. I was absolutely overjoyed when the double live Led Zeppelin DVD (Superhype Tapes Ltd./Atlantic) was released a few months back. Now that I finally had the opportunity to rectify the situation, I was undoubtedly the first on my block with that rocking in my home theater. This concert DVD was one of the first things I played after installing the Paradigm home theater loudspeakers in my system and it kept finding its way back into my DVD players. This is a first-rate-sounding DVD, which is somewhat surprising to me, given the age of the recordings. The Paradigms convey the magic and uniqueness of the moment as guitarist Jimmy Page bows and swats his strings during "Dazed and Confused." John Bonham was in my face as he thwacked his drum kit in a frenzy, reminding me just how great a drummer he was. The crowd was evident in the surrounds, but not distracting or over-exaggerated. Robert Plant's vocals showed off the CC-570 center channel's dynamic capability and synergy, clearly integrating the video and audio stimulus.

"Impressively, the soundstage shrinks from a swirl of activity to virtually nothing as the scene abruptly switches above the water surface, creating a testament to the dynamic range capabilities of the Studio 100-based system."

I always look forward to new animated DVDs from Pixar, such as the recently released *Finding Nemo*. They never fail to please me, as well as my children, always providing excellent home theater loudspeaker evaluation tools. Throughout this film, all of the loudspeakers interfaced well, painting a seamless, realistic background of underwater noises, bubbles and waves. The Paradigm Reference Studio 100-based system provided a very realistic, continuous ambience, making me feel as if I was submerged in midst of the scenes, not just a distant spectator. The integration of the Paradigm loudspeakers, and particularly the ADP-470 surrounds, was further tested when action erupted and moved rapidly around the listening space. These non-direct surround loudspeakers, which had already proved so adept at providing ambient sounds, were just as capable when asked to deliver explosive, direct sounds. They are timbre-matched extremely well with the front trio of loudspeakers. When viewing scenes such as Bruce the Shark chasing the fish Marlin (voiced by Albert Brooks) and Dory (voiced by Ellen DeGeneres), the action is fast and furious. The bone-jarring smashes and clangs come from all directions, with little discernable differences in timbre, regardless of which loudspeaker is the main source. The culmination of this exciting scene features the detonation of an entire minefield, and the Paradigms are capable of just about bringing the house down with little compression, even when near-reference levels were asked for. Impressively, the soundstage shrinks from a swirl of activity to virtually nothing as the scene abruptly switches above the water surface, creating a testament to the dynamic range capabilities of the Studio 100-based system. A film such as *Finding Nemo* demands well-integrated loudspeakers, which the Paradigms certainly are. It is the

subtle sounds and the integration of audio and visual stimulation that make the difference in a film such as this.

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MUSIC

When I set up a multi-channel audio system, the first thing I normally do is listen and optimize two-channel sources. Once that is right, I have a solid sonic foundation upon which I can place and blend the subwoofer, center channel and surround speakers. The Mobile Fidelity Sound Lab Gold remaster of Pink Floyd’s *The Wall* was one of the first things I played after the initial break-in period. This rock masterpiece is one I know well. It has a lot of variety in textures, sounds and dynamics, which serve to flush out the strengths and weaknesses in a system. “Comfortably Numb” reduced me to the predictable mass of slobbering goo, complete with chills, especially after guitarist David Gilmour’s classic solo. There was good weight throughout this disc, the low end nicely balanced if not quite as defined as the best I have heard. As is always the case, bass performance is so room- and placement-dependent that it is sometimes hard to distinguish between room-based or loudspeaker-based causes. This album is full of interesting non-musical noises – planes, helicopters, knocks and such – which are clearly reproduced and placed, even in cases where the effects are low-level and subtle. As I really cranked the volume, a bit of fatigue or bite crept in occasionally during sections with significant high-frequency content. Note that this is in comparison to the very best transducers I am familiar with, with normally higher price tags.

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Moving on to multi-channel sources, I tried *Everything Must Go* (Reprise), the newest DVD-Audio disc from Steely Dan, the masters of juxtaposing upbeat music with varied and often bitter or cynical lyrical themes. This very high quality recording may not be as accessible initially as their previous release, *Two Against Nature*. Although it is not quite as full of catchy pop rock phrases, it is a collection with much diversity that I suspect I will prefer over the long haul. Even Walter Becker takes a rare turn on lead vocals in the funky, danceable “Slang of Ages.” Throughout this disc, many cuts make prominent use of the surrounds, but the overall feel is not in your face. Instead, it is rather subtle and relaxing from song to song, while still being detailed and snappy enough to keep you alert. While playing this disc, I listened to the Studio 100s and CC-570 both with and without the front grilles in place. I assume that the Studio series loudspeakers were designed for use with grilles, and indeed, I did prefer them that way in most instances. With the grilles removed, there was a bit of extra edge, causing some listening fatigue after a relatively short period of time. Replacing the grilles allowed the muscles in my neck to relax and the music to flow, without leaving me desiring any more detail or delicacy. The Paradigm home theater system sounded superb on “Godwacker,” powerful, airy, very spacious and dynamic. This cut was satisfying even at low levels, which I believe to be a reliable barometer and measure of a balanced, accurate loudspeaker. Despite what I just said, it was impossible not to crank up this song and let the Paradigms rip. The mix is focused on the front channels, but contains enough information in the rears to demonstrate the excellent integration of the entire Paradigm system. The center channel disappeared as a separate distinguishable source once I optimized its placement and calibrated

the level, capable of delicacy, as well as force. The high frequencies subtly came alive on the occasional cymbals and percussion snaps. The title cut features a very impressive mix of the surround channels, which are used aggressively without pulling the focus away from the front channels, with their brash saxophone, punchy drums and lead guitar. The ADP-470s excelled on this cut, giving me just enough rhythm guitar flairs and background keyboards to keep the presentation spacious and to hold my interest.

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DOWNSIDE

The Studio CC-570 center channel speaker has no position controls to help compensate for various mounting locations, such as flush with the wall, stand-mounted or sitting on top of a monitor. Because of this, extra care must be taken during set-up in order to render it seamless with the other front speakers. Although the ADP-470 is a capable and flexible surround loudspeaker, it cannot be set as a monopole, possibly compromising multi-channel music playback. Lastly, although the Studio 100s are very satisfying loudspeakers by themselves, augmentation of the lowest octave is necessary to get the full impact and experience of many video sources. Considering they retail for a very reasonable price per pair, this really shouldn’t be considered a major criticism.



CC-570

"The center channel disappeared as a separate distinguishable source . . . capable of delicacy as well as force."

CONCLUSION

The Paradigm Reference Studio 100-based Home Theater Loudspeaker system is a big success, in my opinion. I had a number of curious friends and acquaintances, many of them owners of more modest Paradigm systems, flock over to hear what the Reference Studio big boys had to offer. The word got out that unless you already have a tuned-up high-end system, when you leave my house, you'll likely be unsatisfied with what you have in your own home. Were the Paradigms perfect, equal to the absolute best the high-end has to offer? No, but they came close in many ways, missing a little impact in the lowest octaves and the final word in clarity. Additionally, they lacked the last bit of refinement and created occasional fatigue and bite in the highs. But you get a real and satisfying entry into the big time for a very reasonable price. The Paradigm Reference Studio 100 Home Theater Loudspeaker system is a lot of speaker for the money, working equally well for music and movies. If you are entertaining a purchase in this price range, these newest Reference Studio iterations ought to be at the top of your auditioning list.