

“Paradigm has

**DONE IT AGAIN!”**

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**Stereo Review**

*“... I can't think of a system from any other manufacturer that provides substantially better performance that doesn't also cost considerably more.”*

**The New Mini Monitor**

*(Improved over version reviewed for even better sound.)*



by David Ranada

**P**aradigm takes a mix-and-match approach to home theater, suggesting several speaker combinations that range in price from budget systems to ones that are moderate but still affordable. When we asked the company to send us its best home-theater speaker system at a moderate price, Paradigm obliged with the package reviewed here.

The system consists of a pair of Mini Monitors for the front left and right channels, a CC-350 center channel speaker, a pair of ADP-350 surround speakers and a PS-1200 subwoofer module. As you will see, there's more than a little family resemblance among these speakers.

The Mini Monitor is a two-way, bass-reflex (ported) design incorporating a 1-inch fluid-cooled titanium dome tweeter crossing over at 1.8 kHz to a 6-1/2-inch copolymer polypropylene-cone woofer. Anechoic system sensitivity is given as 86 dB sound pressure level (SPL) with a 2.83-volt

input. Paradigm gives the impedance as “compatible with 8 ohms.” Each speaker measures 13 x 8 x 10-7/8 inches and weighs 15-1/2 pounds. Its rear-panel port does not recommend it for wall mounting, but it works just fine on a stand or bookshelf, the closer to ear level the better. Connections are via multiway binding posts, as they are for all the main speakers in the system.

Aside from the addition of a second 6-1/2-inch woofer, the driver complement of the CC-350 center speaker is identical to that of the Mini Monitor, as are its crossover frequency and stated impedance. It measures approximately 7-1/2 x 22-3/4 x 9-3/4 inches and weighs 25 pounds. When it's placed upright (so that the rear-panel lettering is right side up), the front panel has a slight backward tilt, aiming all the drivers slightly upward. Sensitivity is 1 dB higher than the Mini Monitor (meaning 87 dB SPL, anechoic).

*"The resulting sound quality was excellent: its basic neutrality served all manner of music very well, not to mention soundtracks. Vocals — seemed to be reproduced with particular clarity and realism."*

Take two Mini Monitors, connect them out of phase, mount them back to back, remove the ports, and shrink the resulting enclosure volume by about half, and you'll have the basic configuration of the ADP-350, a dipole-radiating surround speaker. You guessed it, the ADP-350 has the same rated impedance and the same crossover frequency as its front-channel siblings, while its sensitivity is the same as the CC-350's. Dimensions are 13 x 11-3/8 x 8 inches, and weight is 25-1/2 pounds (each). Hardware for wall mounting is provided.

*"We don't usually obtain such flatness and low-frequency extension simultaneously in our listening room."*

Deep bass for the entire system is provided by the PS-1200 subwoofer module, which is rather large (19-1/4 x 17-1/4 x 21-1/2 inches) and heavy (68 pounds). It contains a 12-inch cone driven by a 130-watt power amplifier in a dual-cavity enclosure. This means that you can't see the driver directly, the sound emerges only from three ports on the "rear" panel (the side of the otherwise plain box that contains the connections and controls).



#### **The New CC-370**

*(Improved over version CC-350 reviewed for even better sound.)*

*"... the Mini Monitors' imaging was as precise in angle and depth as I would ever deem musically or dramatically necessary."*

The PS-1200 accepts signals at either line level or speaker level. The line-level inputs allow use of the module's line-level high-pass-filtered outputs for removing deep bass from any connected main or satellite speakers. The high-pass outputs roll off at 18 dB per octave below 80 Hz. The PS-1200's own low-pass subwoofer crossover has a roll-off frequency that is variable between 50 and 150 Hz with a rear-panel knob. A level knob and a continuously variable phase-alignment control are also provided. The latter adjusts the bass module's phase relationship through its crossover region relative to the main speakers. That is inherently a superior way of compensating for any distance mismatch between the bass module and the main speakers of the system, and the control can be used to obtain much flatter response in the primary listening area than the typical polarity-flipping "phase" switch can provide.

*"... the CC-350 center speaker was a very good sonic match with the Mini Monitors, which produced dividends in surround-sound imaging "tightness," positional accuracy, and stability."*

Hook-up was quite straightforward, as was adjusting the subwoofer for the best frequency-response "Splice" with the main speakers. Here the subwoofer's phase control proved its worth. By carefully adjusting it—while monitoring the sound with a lab-grade spectrum analyzer fed from our measurement microphone—I was able to get an excellent combined Mini Monitor/PS-1200 response at the listening position. The response measurement was both unusually flat ( $\pm 3$  dB)

and unusually extended, especially in the low frequencies, ranging from 25 Hz to 20 kHz. We don't usually obtain such flatness and low-frequency extension simultaneously in our listening room.

The resulting sound quality was excellent: its basic neutrality served all manner of music very well, not to mention soundtracks. Vocals, if well recorded to begin with (an amazingly uncommon occurrence), seemed to be reproduced with particular clarity and realism. As is usually the case with flat-responding speakers, the Paradigm system proved uncompromisingly critical of recorded material that was not quite up to snuff

*"... the ADP-350 surrounds produced the good response claimed ... a response that is outstandingly flat and extended ..."*

While the adjustment procedure was straightforward, the process itself took about 45 minutes. That's because I tried several combinations of settings for the main-channel high-pass filtering and the subwoofer crossover frequency in order to get the best crossover splice, all the while adjusting the PS-1200's level and phase controls as well as moving the bass module around in our normal corner location. I ended up with 100-Hz high-pass filters on the main channels (fortunately, a value typical of the filtering in many Dolby Digital AN receivers), the PS-1200's crossover frequency dialed up to its 3 o'clock position, the phase control turned about halfway, and the module placed along a side wall a foot away from the corner. In our room, using a lower high-pass frequency, such as the 80 Hz provided by the PS-1200, made it difficult to obtain the smoothest main-to-subwoofer transition.



#### **The New ADP-370**

*(Improved over version ADP-350 reviewed for even better sound.)*

If your equipment allows it, you might want to try an even higher high-pass frequency, such as 120 Hz. The Mini Monitors distorted at high levels with frequencies of 50 Hz and below, so we wouldn't recommend them for use without a subwoofer or bass module or without high-pass filtering.

***"... a good sonic match between surrounds and fronts, not only benefited soundtracks of all kinds but also noticeably increased the spatial realism ..."***

Our response measurements were made with the Mini Monitor tweeters close to my seated ear height, which required placing the speakers on stands 30 inches above the floor. But unlike some home-theater speakers, whose vertical radiation is "optimized" for film-sound reproduction, the Mini Monitors' somewhat omnidirectional radiation produces a sound quality that shouldn't change all that much with their height, an advantage both when it comes to placement at home and during in-store auditions.

***"... the PS-1200 was able to produce literally room-rattling sound levels with no sense of strain ... In some sequences from 'Star Trek: Generations' on Dolby Digital laserdisc, I obtained clean sound at volumes that would be frighteningly loud at home."***

That dispersion pattern also tends to produce slightly less focused frontal imaging compared, say, with a THX speaker system, and this was evident with imaging test tones. But with typical music and soundtracks, the Mini Monitors' imaging was precise in angle and depth as I would ever deem musically or dramatically necessary.

***"Some of the wider deep-bass passages in Messiaen's pipe-organ music ... were also reproduced with lifelike extravagance."***

The identical drivers and matched crossover frequencies of all the main speakers in the test system probably had a great deal to do with their sonic consistency. In particular, the CC-350 center speaker was a very good sonic match with the Mini Monitors, which produced dividends in surround-sound imaging "tightness," positional accuracy, and stability. Even from their locations to the side of the main listening position, the ADP-350 surrounds produced the good response claimed for them in the Paradigm product brochures. I measured  $\pm 4.5$  dB from 100 Hz to 20 kHz, a response that is outstandingly flat and extended at high frequencies for a dipole speaker (which has all of its drivers pointing 90 degrees away from the listener and half of them out of phase with the others). The bass output was usable to below 50 Hz. These characteristics, which enabled a good sonic match between surrounds and fronts, not only benefited soundtracks of all kinds but also noticeably increased the spatial realism of the digital ambience-enhancement music modes available on many surround-sound receivers.

Finally, the large driver of the PS-1200 was able to reproduce literally room-rattling sound levels with no sense of strain down to about 40 Hz. Below that, distortion increased to audibility with high-level test tones, but the system was able to produce usable output to below 25 Hz. Dolby Digital soundtracks drove the PS-1200 to only a few decibels short of full theatrical levels without any distinct signs of strain. In some sequences from *Star Trek: Generations* on Dolby Digital laserdisc, I obtained clean sound at volumes that would be frighteningly loud at home. Some of the wider deep-bass passages in Messiaen's pipe-organ music (there are many such) were also reproduced with lifelike extravagance.

I can't imagine a combination of Paradigm speakers that could produce better overall

home theater sound for the asking price of this setup. Likewise, I can't think of a system from any other manufacturer that provides substantially better performance that doesn't also cost considerably more. Paradigm has done it again!

PS-1200

