

AVguide MONTHLY

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Small Speakers; Gigantic Soundstage

Mirage Nanosat 5.1-Channel Speaker System

Mirage is a well known Canadian loudspeaker maker whose corporate identity hinges on two things: first, building high-performance omni-directional loudspeakers (which Mirage terms Omnipolar speakers), and second, offering speakers that deliver terrific value for the money. This month we'll be looking at what just might be the value leader of Mirage's entire lineup, the \$800, 5.1-channel Nanosat surround speaker system (which Mirage describes as the smallest omni-directional speaker system in the world).

Omni-directional loudspeakers deliberately disperse sound waves to the front, sides, and rear—not just toward the front as direct radiators do. While it's possible to build a strong theoretical case for either design approach, Mirage explains that omni-directional "technology uses natural room reflections to create a greater sense of realism... accomplished by recreating the same ratio of direct to reflected sound found in nature, 70% reflected and 30% direct." While all omnis strive for an even 360-degree dispersion of sound in the horizontal plane, much of the art and science of designing an omni-directional speaker revolves around how that dispersion is achieved, and the approach Mirage uses in the Nanosat system is perhaps the simplest and most cost effective I've seen.

The Nanosat is a small, two-way

satellite speaker equipped with a 2 ¾" titanium deposit-polymer mid-bass driver and a ¾" pure titanium hybrid tweeter, with both drivers positioned to face upward rather than forward, as would normally be the case in a direct radiator. Above each driver, Mirage suspends saucer-shaped

say this subtle design detail helps improve the focus of stereo and surround-sound imaging, yet without disrupting the speaker's smooth 360-degree dispersion. In a clever piece of engineering, the Omniguide for the Nanosat's mid-bass driver also acts as the housing for its titanium dome tweeter; then, another tiny saucer-shaped Omniguide is suspended above the tweeter. This system of nested drivers and dispersion guides was first pioneered on Mirage's popular Omnisat speaker, after which the tiny Nanosat is patterned and from which it derives its name.

The Nanosat system comes packaged in a medium-sized carton and is comprised of five identical Nanosat satellites (for use as L/R mains, surrounds, and center-channel speakers), plus a matching Nanosub powered subwoofer. To give you some idea of how compact the little Nanosats really

are, let me mention that each could comfortably rest in the palm of your hand. The Nanosats come with

brackets for wall mounting and rubber feet for tabletop use, but Mirage also offers optional MS-STB-1 floor stands, which I used for my L/R main satellites. The standard wall brackets and optional stands allow the Nanosats to be swiveled toward the listening area. In an interesting twist, the wall brackets also allow the Nanosats to be mounted upside down for applications where the speakers need to be positioned higher than 6'



deflectors (which Mirage calls Omniguides) that redirect the upward-firing output from the drivers, dispersing their sound evenly to all sides. The Nanosat mid-bass driver is canted forward just slightly, so that an added portion of its output is directed toward the front. Mirage's engineers

above the floor.

The Nanosub features a front-vented enclosure loaded with a downward-firing 8" titanium deposit-polymer woofer. The woofer's cone is suspended by Mirage's patented, elliptically shaped ribbed woofer surround ring, which is said to reduce woofer distortion, improve damping, and facil-

"To give you some idea of how compact the little Nanosats really are, let me mention that each could comfortably rest in the palm of your hand."

itate longer and more linear woofer motion (Mirage shares the patent with its sister company Energy). The subwoofer provides a 75W amplifier, which, despite its seemingly modest power rating, drives the Nanosub to surprisingly high output levels. The version of the Nanosub supplied with the Nanosat system features a built-in, fixed, 120Hz crossover and provides no phase control (Mirage offers a slightly different version of the Nanosub as a standalone product, which comes with an adjustable crossover. However, Mirage supplies a simplified Nanosub for this system, partly as a cost-saving measure, but primarily to make system setup as foolproof as possible). The Nanosat system comes in three colors: platinum, platinum/black, and pure white (my family loved the white review samples because the color made the system look elegant, yet unobtrusive).

In a moment we'll talk about how the Nanosat system sounds, but first it might be good to discuss some of the distinct differences between the sounds of omni-directional loudspeakers as compared to traditional direct radiators. First, because omnis deliberately reflect a considerable portion of their output off adjacent walls, they can often create unusually wide and deep soundstages (subjectively, the sound may seem to originate from a plane well behind the speakers). Second, because omnis offer a 360-

degree dispersion pattern, there is less tendency for them to create a single, centrally located "sweet spot;" instead, listeners seated to either side of the traditional sweet spot may enjoy surprisingly good stereo and surround-sound imaging. Third, the best omnis have an almost uncanny ability to "disappear" into the sound field, meaning they draw little attention to themselves (often creating the powerful illusion that they aren't really the sources of the sounds you're hearing). These positive characteristics do, however, come at a price: Omnis, as a general rule, tend to sound more diffuse and less precisely focused than direct radiators. Some listeners find they miss the tightly focused sound that direct radiators provide, while others embrace the broad dispersion that omnis offer, finding their sound more natural and realistic. You'll have to make your own judgment on this



issue, but either way there is no denying that omni-directional sound has interesting implications for listening to films and music.

Film Playback

Overall, the Nanosat system took to film playback like a duck takes to water, largely because its omni-directional satellites promoted unusually smooth blending of sound between channels. With this system you have very little sense of channel isolation (as in, "Attention, listeners; this special effect is brought to you by the RIGHT REAR speaker."). Instead, the system always sounds panoramic, presenting a more or less continuous

"ring" of sound that surrounds the listener, not five individual "blobs" of sound clustered close to the speakers. In scenes whose sound designs feature rapid pans from left to right, or front to back, as in the famous Paris car chase scenes from *The Bourne Identity* [Universal], the added smoothness on transitions is really noticeable. I also found the Nanosats seemed



unbound by the dimension of my room, sometimes creating the illusion of a giant acoustic environment, as in some of the open-field battle scenes from *King Arthur* [Touchstone], where you hear the clash and clamor of combat close at hand juxtaposed against the sounds of warriors approaching the battlefield from afar.

While the Nanosats, like any small system, will eventually run out of dynamic headroom if you try to play them too loudly, they sound much more full-bodied and robust than their small size would suggest.



phase controls). In comparison to the subwoofer that Energy provides in its similarly-priced act6 surround system, the Nanosub sounds somewhat more smoothly integrated with its associated satellites and better controlled, with low-frequency output—down to around 30 Hz—that, like the Energy sub's, is quite vigorous. How vigorous? Well, on large-scale low-frequency effects, the Nanosub's deep-bass output was so strong it shook glass shelves in a room adjacent to my home-theater room, making small objects start "dancing" around! Though compact, the Nanosub is no wimp, offering more than enough output to keep up with the Nanosat satellites.

Music Playback

I thoroughly enjoyed the Nanosats for music playback, in particular because their omni-dispersion helped them produce exceptionally wide and deep soundstages. My wife, on first hearing them, said, "They sound so 'big' that they almost make you wonder if there's any need to buy a larger system." On well-recorded multichannel (DVD-Audio and SACD) music material, the Nanosats simply got out of the way and let great surround-sound imaging happen. Some journalists have said Mirage's omni designs leave them wishing, at least to some extent, for the more focused sound of direct radiators—especially in the area of pinpoint imaging. I understand that point of view, but I see (or more accurately, hear) things a little differently. When I go to a live concert and close my eyes, I find the sound of live music more closely resembles the smooth, slightly diffuse sound of omni-directional speakers—not the hyper-vivid presentation you'll hear with some direct radiators. Though omnis give up some of the imaging specificity that's *possible* with direct radiators, I find their sound arguably comes closer to capturing the overall "feel" of a live event.

On multichannel records that capture plenty of hall ambience, such as "Not While I'm Around," from Christy

In fact, one of the nicest qualities of the Nanosats is that they consistently sounded appropriately warm and smooth, never thin, edgy, or shrill. I also discovered that the Nanosats were a naturally great fit for surround-channel applications because—unlike direct radiators—they can present surround channel information clearly, yet without seeming to be its source. This means listeners can sit fairly close to the Nanosat surround speakers without being distracted (or overpowered) by them—a characteristic those seated at the far end of the couch will appreciate.

However, as I listened closely to the Nanosat center channel, I found I missed the more focused sound of a direct radiator, because the little omni sometimes sounded too diffused for its own good. Consider, for example, what happens in scenes featuring tight close-ups with intimate dialog. Normally, you see tightly focused close-ups on screen and expect to hear correspondingly focused sound from the center channel, but the Nanosat disperses dialog so broadly

that it seems a little inconsistent with the onscreen image. To compensate for this problem, I sometimes bumped up center-channel levels a dB or two to improve dialog intelligibility. This led me to wonder what would happen

"...the system always sounds panoramic, presenting a more or less continuous "ring" of sound that surrounds the listener, not five individual 'blobs' of sound clustered close to the speakers."

if Mirage developed a hybrid surround system that used omnis for its L/R main and surround speakers, but a direct radiator as the center channel. Food for thought, perhaps?

Finally, we come to the Nanosub, which I thought melded beautifully with Nanosat satellites (in spite of it not having adjustable crossover or

Baron's *Retrospectives* [Chesky SACD], which Baron and her small jazz ensemble recorded in the interior of a church, the Nanosats do a great job of transforming the acoustics of your listening room into those of the recording space. Compared to direct radiator-based surround systems in this price range, I found the Nanosats

"Though omnis give up some of the imaging specificity that's possible with direct radiators, I find their sound arguably comes closer to capturing the overall 'feel' of a live event."



generally more captivating and musically believable—largely because they raise the bar for imaging smoothness and continuity several notches higher than you normally expect from an \$800 system. Their spatial characteristics also served orchestral music well, doing a good job of showing sections of the orchestra broadly arrayed across a stage in front of the listener (with sounds of hall ambience wrapping around to the sides). The only place where the Nanosats occasionally disappoint is on music that is *appropriately* close miked, such as "Gaia" from James Taylor's *Hourglass* [Sony SACD], where the Nanosats lose some of Taylor's vocal intensity, ever so subtly smoothing over inflections and textures you would hear more clearly through a good set of direct radiators. Nevertheless, this seems to me an acceptable tradeoff, given the smooth spaciousness the Nanosats otherwise bring to music.

The Nanosat system, like any small system, has dynamic limitations you must observe, but as long as you play within the system's capabilities, it will reward you with sound that is at once enveloping and exciting, yet also relaxing—a very tough combination to pull off.

On the basis of this review experience, the Nanosat system has

become one of my favorites in this price range (I found it even more engaging than the very good and identically priced [Energy act6 surround system](#) I reviewed a few months back). Compared to most systems at this price, the Nanosat offers superior imaging smoothness and three-dimensionality, greater freedom from edginess, better subwoofer integration, and reasonably neutral tonal balance that equals the best I've heard in this class. If you respond as favorably as I do to the things that omni-directional speakers do well, then I think Mirage's Nanosat system stands a good chance of becoming one of your favorites, as well.

SPECIFICATIONS

Price: \$800, Nanosat system

Mirage Nanosub Powered Subwoofer

Frequency Response: 30-120Hz
±3dB

Power: 75 watts RMS

Drivers: One 8" titanium deposit-polymer woofer, in a bass reflex enclosure

Dimensions: 14.6" x 11.65" x 15.3"

Weight: 20.1 lbs

Mirage NanoSat L/R/C/Surround Satellites

Frequency response: 110Hz-20kHz;

+/-3dB

Power handling: 100 Watts

Nominal impedance: 8 Ohms

Sensitivity: 87dB (1W/1m)

Driver Complement: 1 x 2 ¾" titanium deposit-polymer mid-bass driver, 1 x ¾" pure titanium hybrid tweeter, both with omni-directional dispersion guides.

Dimensions: 5.8" x 4.2" x 4.3"

Weight: .3lbs. each.

Warranty (parts and labor): Five years (Nanosats), one year (Nanosub)

MANUFACTURER INFORMATION

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ASSOCIATED EQUIPMENT

Pioneer PDP-505HD plasma display; NAD T753 A/V Receiver; Integra DPC-8.5 Universal Changer; Synergistic Research interconnect, subwoofer, and speaker cables (featuring proprietary Synergistic active shielding system); Chang Lightspeed CLS-HT 1000 Mk II power conditioner