

EQUIPMENT REPORT



Cardas Audio EM5813 Ear Speaker

Miniature Marvel

Chris Martens

Growing numbers of serious music lovers are drawn to high-performance earphones and headphones, though we recognize that some of our fellow audiophiles remain skeptical about products in this category. I suspect this may have to do with a latent conservative streak among high-end listeners, where the trend is often to stick with tried and true solutions until newer alternatives have proven their mettle. Another factor may involve simple lack of familiarity with the options available—a problem compounded by the fact that for every truly great earphone on the market there are probably five or more that look similar but sound mediocre at best. Obviously, this makes it tricky for newcomers to sort out the winners from the clunkers. But a

third factor involves the lack of precedents within the industry. Thus far relatively few well-established, purist-oriented high-end audio companies have chosen to embrace high-performance earphones—until now.

We are pleased to say that Cardas Audio, one of the oldest and most trusted of high-end audio manufacturers, has recently taken the plunge, releasing a high-performance earphone called the EM5813 Model 1 Ear Speaker, priced at € 499. While the Ear Speaker is a relatively new arrival in the marketplace, it has been under development for years. To his great credit, company founder and Ear Speaker developer George Cardas resisted the temptation to rush his earphone into production, choosing

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instead to take extra time to improve and refine the EM5813 until its performance could be considered worthy of the Cardas name. **Was the Ear Speaker worth the wait? Our answer is a resounding “Yes!”** for reasons we’ll discuss in this review. But, first let’s look at some of the construction details that make this earphone special.

As we suggested above, George Cardas was deeply involved in every aspect of the Ear Speaker’s design, meaning he had a hand in specifying the configuration of the EM5813’s earpieces, drivers, ear tips, and, of course, signal cables. He also carefully evaluated and selected the many materials used for the Ear Speaker’s most critical parts. **In short, the Ear Speaker is every inch a real Cardas product—not some cheesy, off-the-shelf, third-party earphone re-badged with a Cardas logo.**

In creating the Ear Speaker, Cardas followed design philosophies similar to those that have guided his audio cable designs over the years. Thus, Cardas asserts (without supplying much technical detail) that “the hearing system, musical chords, and these Ear Speakers are reflections of the Golden Ratio” (a design theme underlying many Cardas products). Further, Cardas states that “the EM5813 mirrors the human cochlea and tympanic membrane”—an approach the company terms “Ear Mirror Design.”

Inevitably, readers will ask where the Ear Speakers are made, which turns out to be a deceptively complicated question. Cardas says, “Components of the E5813 were manufactured in Oregon, California, and The People’s Republic of China. Custom alloys were sourced from Italy, Germany, and the U.S., magnets from China, and thin film from Japan.” The EM5813 is built from parts sourced from around the globe, using sub-assemblies mostly built in the U.S., with final precision assembly work handled in China, meaning the Ear Speaker is truly international in its origins.

The EM5813 earpiece housings are machined from solid brass, polished, and then treated to a gleaming copperplate finish. The earpieces sport tiny rear-firing vents and feature very thick sidewalls, meaning they provide an unusually rigid and stable mounting platform for the drivers within. The drivers are 11.45mm dynamic units that feature extremely powerful neodymium magnets and diaphragms made of a distinctive, PEN (polyethylene naphthalate) thin-film material.

Even the smallest of internal design details came in for close scrutiny as Cardas carefully chose specific metal alloys for use in the driver’s yoke frame and for a washer-like spacer used inside the driver motor to better control internal magnetic fields. Finally, Cardas specified special thin-walled, dual-flange ear tips for the EM5813—offering these ear tips in both vented and non-vented forms. My point is that every aspect of the Ear Speaker’s design was weighed and chosen with care—always with an eye toward maximizing technical performance and perceived sound quality.

The EM5813 comes with a minimalist set of accessories: two pairs of identically-sized, color-coded ear tips (one set vented and the other non-vented); a set of permanently attached Cardas Clear Light Headphone Cables fitted with a garment clip and serial number tag, a cleaning tool, and a leather clasp-type carrying pouch.

What’s up with the idea of providing just one size of ear tips? Cardas worked very hard to create what it intended as virtual “one-size-fits-all” ear tips, but offering those tips in vented and non-vented formats to give listeners some ability to adjust perceived earphone voicing to suit personal preferences. Now

that several batches of Ear Speakers have shipped and owner feedback has been gathered, Cardas says its dual-flange ear tips work well for about 90% of prospective buyers, though they have seen some demand for both larger and smaller sets of the tips.

(Late-breaking news: As this review was being finished, we learned Cardas had finalized arrangements to produce its ear tips in three sizes (S, M, and L)—a decision we applaud. This change may already have take effect by the time you read this, but if not Cardas’ Andy Regan says that, if current Ear Speaker owners will register their earphones at www.cardas.com, the firm will happily send those customers updated accessories kits.)

Having taken a brief look at the Ear Speaker’s basic configuration and construction, let’s now direct our attention to the question that surely matters most: How does the Cardas Ear Speaker sound? To be perfectly candid, I found the Ear Speaker difficult to characterize, partly because it does not sound like many of the other earphones I have heard and reviewed (it is for the most part different in a good way), but partly because its sound is intensely dependent upon fit (more so than is the case with some competing earphones).

Let me begin by saying that, once properly fitted, the Cardas Ear Speaker is one of the most engaging, involving, and downright seductive earphones I’ve yet heard. Much of this comes down to the fact that the EM5813 sounds remarkably coherent across its entire operating range. In recent years, many top-tier earphones such as the AKG K3003, Shure SE535, Ultimate Ears UE900, and Westone 4 have gravitated toward multi-driver designs, but Cardas (along with a few other firms) has taken the path less traveled by going with a single, full-range dynamic driver. It’s a design choice that has paid huge dividends in overall sonic integrity, meaning that when you hear instrumental notes through the EM5813, the fundamentals and harmonics of the notes sound as if they belong together and originated from a single instrument. By contrast, some earphones get the general

SPECS & PRICING

Type: Dynamic-driver equipped earphone
Driver: 11.45mm dynamic driver with a neodymium magnet-drive motor and PEN-type thin-film diaphragm
Impedance: 32 Ohms
Weight: Not specified
Price: \$425

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ASSOCIATED EQUIPMENT
Headphone Amplifiers: ALO Audio Rx MK3-B, Apex Hi-Fi

Glacier, Burson Audio Soloist, Ray Samuels Audio SR-71B
The Blackbird, V-MODA Vamp Versa.
Earphones: Final Audio Design FI-BA-SS and Adagio III earphones, HIFIMAN RE-400 Waterline and RE-600 Songbird, RBH EP1, Ultimate Ears UE-900, Westone 4.
Custom-Fit In-Ear Monitor: ACS Custom T2; JH Audio JH 16 PRO; Ultimate Ears UE 18 Pro, In-Ear Reference Monitors, and Personal Reference Monitors; Westone Elite-Series ES-5

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shape of the notes right, yet render them in a way that make the fundamentals and harmonics sound woefully out of sync with one another. Happily, the Ear Speaker consistently leaves music sounding rich, whole, and intact.

Another major factor at work is the Ear Speaker's ability to render very fine layers of textural and transient detail even as it reproduces whatever large- or small-scale dynamic contrasts may be at hand. What this buys you, I think, is an earphone that not only plays the music (all of the music) in a holistic way, but that also has an uncanny ability to convey a sense of musical context. With the Ear Speaker in play, you can tell in an instant whether a recording was made in a studio or captured in a live music venue, whether reverberations occurred naturally or were created by electronic effects, and whether recordings were made with a lot of post-production processing or not. Through the EM5813 the music "breathes" and unfolds around you in a compelling, natural way—a characteristic enhanced by the fact that the Ear Speakers are dramatically better imagers than most competing earphones are.

Finally, we come to the matter of tonal balance, which can be tricky to discuss given that the Ear Speaker's perceived voicing is, as mentioned above, dependent upon fit. When properly fitted the Ear Speaker is a reasonably neutral transducer, but one with gentle touches of midrange forwardness and a smidgeon of bass lift. To temper this bass lift, if desired, and to give the Ear Speaker a somewhat lighter, more airy sonic persona, one simply substitutes the blue-colored vented ear tips for the non-vented white ones. Which of the ear tips you prefer will be a matter of personal taste, but for what it is worth I found that the blue, vented tips seemed more accurate while it was more fun to listen to the EM5813s with the white tips in place. Either way, one of the Ear Speaker's greatest strengths is voicing that has a lovely "organic" quality that consistently sounds more like music and less like "hi-fi."

To understand how the Cardas' strengths play out on real-world musical material, try any of the tracks from the David Chesky Quintet's new Binaural+ Series recording *Jazz in the New Harmonic* [Chesky]. On the dark-themed, brooding track "Grooves from the Underground," the Cardas does a fantastic job with the drum kit and cymbals, capturing the delicate "skin" sounds of the drumheads, the crisp snap of snare drum rimshots, and the evanescent and insistent pinging of the high-hats. Best of all, the Ear Speaker catches the manner in which the drums and cymbals energize the room. Similarly, the EM5813s reveal the dark, well-grounded pulse of the acoustic bass, which more than any other instrument in the ensemble defines the song's fundamental groove, while showing how the melancholy, almost Miles-like tonality of the trumpet serves as a counterpart to the bass. My point is that not only do these earphones give you the sounds of the instruments in a realistic way, but they also place those instruments in a believable three-dimensional context, while revealing dynamic and melodic interactions between musical lines. With the Ear Speakers in play, how could the listener not become fully engaged in the proceedings?

For comparison, I tried the same track through the comparably priced Ultimate Ears UE 900 earphones. On the whole, the UE 900s acquitted themselves very well, exhibiting what some might regard as even more neutral tonal balance than the Cardas. But at the same time, the UE 900s sounded detailed and cohesive only to a point beyond which they seemed unable to go. Normally,

I would never say the excellent UE 900s sound veiled, but the fact is that the EM5813s could and did probe low-level details with greater resolution and cohesiveness, creating a much more enveloping sense of the soundstage in the process.

For a further comparison, though admittedly an unfair one, I also sampled the same track through the very expensive Final Audio Design FI-BA-SS earphones. I found the Finals offered as much if not a touch more in the way of low-level information retrieval than the Cardas Ear Speakers did, though this should come as no surprise given the Final's much higher price. What surprised me, though, was that the smooth, organic voicing of the Ear Speakers sounded noticeably more musically "right" than the somewhat brighter presentation of the FI-BA-SS. In my recent review of the Final FI-BA-SS (published in our sister magazine *Hi-Fi+*) I pointed out that the price of its highly detailed sound was a tendency to sound a bit edgy on certain hard-edged midrange transient sounds. What the Cardas 'phones show is that you can have nearly the same levels of resolution, but without edginess and at a considerably lower price.

In reflecting on the Cardas Ear Speakers, my reactions were on the whole overwhelmingly positive, though I do have a few nits to pick. First, I would encourage Cardas to offer the Ear Speaker's signal cables with smooth outer jackets rather than the current coarsely textured fabric covers. The covers undeniably look cool, but in practice they rub and snag against your skin and clothing, sending unwanted noises onward into the earpiece housings. Second, I think Cardas should consider making the Ear Speaker's signal cables detachable and user replaceable. Finally, I'd like to see the Ear Speakers come with a 1/4-inch TRS (tip-ring-sleeve) adapter, for the simple reason that these earphones are so good that users may want to try them with high-performance desktop amps whose only outputs are 1/4-inch jacks. Note, please, that the foregoing comments should be taken as a "wish list" for some final detail touches that could help make an already fine earphone even better.

In summary, the Cardas Ear Speaker is a brilliant high-performance earphone from one of the most respected manufacturers in high-end audio (and it is an achievement made all the more impressive by the fact that it is, after all, Cardas' first earphone design). The Ear Speaker is an accomplished and downright enchanting transducer that makes listening to music captivating, illuminating, and just plain fun. The Ear Speaker should be considered a reference in its price class (and beyond) and—if your reactions are anything like mine—you may find that once you start playing music through them you won't want to stop. **tas**

