

Sumptuous and Revealing

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I first heard Audeze LCD-2 planar magnetic headphones (\$945 – \$995, depending on options chosen) about a year ago at a Can-Jam event organized by our friends at www.head-fi.org. When I visited the Audeze demonstration table, I must say that I experienced a veritable flood of favourable impressions, one right after another. Let me take you through that experience step by step.

Even before hearing the LCD-2 I was struck by its beautiful appearance. What caught my eye were both the LCD-2's lovely Caribbean rosewood ear cup housings, and also the precise fit of the headphone's metal parts and leather ear pads. Even from a quick glance it seemed obvious that the headphones had been built with care and terrific attention to detail.

Then, after putting the headphones on, I couldn't help but be wowed by the sheer levels of comfort the Audezes provided. Though the LCD-2's have quite large ear cups, their well-designed leather ear pads do a great job of making them feel lighter than you might expect and of pampering the listener. Frankly, these headphones feel the way that the interior of a Rolls-Royce automobile looks—in a word, sumptuous.

Finally, as I began to play reference musical material through the LCD-2's, my attention was drawn—as if by a tractor beam—to their sound. After a few minutes of initial familiarization, I thought to myself that the LCD-2 was perhaps one of the very best headphones I had ever heard (an impression reinforced, no doubt, by the fact that the Audezes were being powered by an early prototype of Cavalli Audio's spectacularly good Liquid Fire headphone amplifier). Although I perceived their voicing to be slightly on the warm (or dark) side of strict neutrality, I found the LCD-2 seemed for the most part to provide smooth and accurate frequency response, and that it had an uncanny ability to retrieve low-level sonic details without ever sounding as if it were working hard to do so.

Given all of these favourable first impressions, I of course requested review samples of the LCD-2 for Playback, with results I am pleased to report in this review.

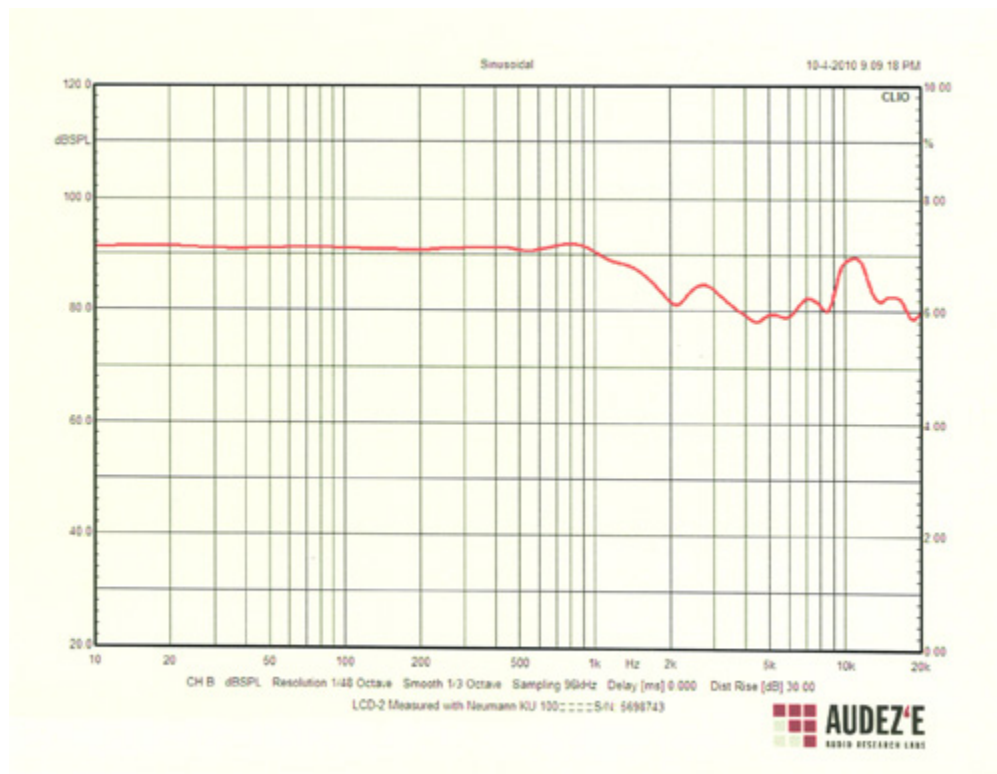
FEATURES

- **A Home-Grown Product:** Audeze's LCD-2 has been designed and manufactured entirely in the U.S.—a factor potentially of great importance to some buyers.
- **Fit and Finish:** Everything about the LCD-2 is finely finished, including its presentation case, which is made of Caribbean rosewood, as are the open-back ear cup housings of the LCD-2. Alternatively, buyers can forego the wood presentation case and instead opt for a well-made travel case.
- **Planar Magnetic Drivers:** The LCD-2 features planar magnetic drivers that differ substantially from the voice coil-driven, piston-type drivers found in most headphones.
- In a traditional driver a voice coil/magnet assembly serves as an electromechanical "motor" that drives a cone- or dome-shaped diaphragm forward and backward to produce sound waves. Because the voice coil exerts force on the diaphragm either from its center (as with a cone) or from its outer edge (as with a dome), traditional driver diaphragms must, as a matter of practical necessity, be strong, stiff and rigid—qualities that ultimately limit how low the mass of the diaphragm will be.
- In contrast, planar magnetic drivers use ultra-thin, membrane-like diaphragms whose surfaces feature etched circuits that—in essence—serve in the capacity of "voice coils." The entire diaphragm, complete with embedded circuit traces, is suspended in a magnetic field (typically created by magnets positioned in a precise pattern and attached to a flat, open, grid-like frame), so that when audio signals are present the whole diaphragm surface moves forward and backward, producing sound. Since the diaphragm is effectively driven over its entire surface area it can be made incredibly light, thin, and responsive. Audeze points out that, "the mass of the (LCD-2) diaphragm is very light and is comparable to the mass of the air it moves." The result, according to Audeze, is a drive unit that offers several compelling benefits relative to traditional piston-type drivers.
- **Planar magnetic driver benefits:**

- **More precise, piston-like driver motion with lower distortion.** According to Audeze, these benefits are “due to the even application of force by the magnetic field surrounding the diaphragm, which reduces distortion effects. ”
- **Toughness and durability:** As Audeze notes, “the diaphragm is mounted on all sides, reducing fatigue points; Planar Magnetic speakers employ a tough polymer as the base material, which makes it much more durable than cone diaphragms.
- **Responsiveness:** Audeze observes that, “because the diaphragm is very thin, it is also more responsive, leading to more faithful sound reproduction and the crispness of sound that is the hall mark of good quality speakers.”
- **Superior cooling and reliability:** Audeze point out that “because (they are) flat, planar magnetic drivers can dissipate heat more quickly using the large surface area of the diaphragm itself, which dramatically reduces the chance of burn-out. ”
- **Relatively high sensitivity and efficiency:** Unlike some planar magnetic headphones, the LCD-2 is comparatively easy to drive, thanks in part to what Audeze terms a “very strong magnetic field” created by a grid of 12 very powerful Neodymium magnets per earpiece (hence, a total of 24 such magnets are used in each headphone).
- **Transient speed:** According to Audeze the LCD-2 strong magnet assembly “creates a linear force that moves the diaphragm back and forth with extremely low distortion” and that “also results in extremely fast transient response.”
- **Unit-to-unit consistency:** Audeze claims that the response curves of all LCD-2 driver units match one another to within ± 0.5 dB.
- **Very important note:** Just before this review was finalized, Audeze announced the release of new Rev2 drivers for the LCD-2, which use a slightly lower mass membrane material than the original driver used (our review samples feature the original driver). The Rev2 driver are said to offer a sonic signature similar to the original design, but with these changes: “Low frequencies stay flat, but are tighter and even more extended (flat to 5 Hz), midrange is smoother and more transparent, while high frequencies are more extended, detailed and more pronounced.” Thus, there is every possibility that the LCD-2 you would buy now might sound even better than our review sample did (and does).
- **Comfort Factors:** The LCD-2 comes fitted with a broad, metal-reinforced, foam-padded headband to which the headphone’s earpieces are attached via swiveling, height-adjustable mounts. The headphone allows a very broad range of adjustments, and is extremely comfortable to wear.
 - As an extra-cost option (+\$50) the LCD-2 can be ordered with a leather-clad headband pad. The standard pad is made of a foam rubber material.
 - The LCD-2 features soft, cushy, leather-clad ear pads. Interestingly, the pads vary in thickness around their circumference so that, when viewed from above, the pads seem nearly wedge-shaped—that is, they are thicker in the rear than in the front. As a result, the pads serve to angle the earpieces for better alignment with the wearer’s outer ears. This sort of attention to seemingly small but ultimately significant details is very typical of Audeze.
- **Verified Results:** Each LCD-2 comes with a frequency response test chart to document the performance of the specific unit you receive. Our test sample exhibited almost ruler flat (that is, dead accurate) response from 10 Hz to about 1kHz. Above that point, upper midrange and treble response are shelved downward a bit, but otherwise remain fairly flat, on out to 20kHz. The only deviation (and then a fairly minor and well-controlled one) was a narrow peak centered just above 10kHz.
- **Accessories:**
 - The LCD-2 comes with a very high quality, detachable (and thus user replaceable) “Y-shaped” signal cable that attaches to the headphone earpieces via mini-XLR-type connectors.
 - Also included are a small wrench, a polishing cloth, and a vial of wood-care oil.

SONIC CHARACTER

The LCD-2 sounds just the way its accompanying frequency response chart suggests that it would, meaning that—for starters—the headphone sounds extraordinarily smooth and evenly balanced from the lowest bass notes right on up through the middle of the midrange. I can't begin to overemphasize how important this broad, multi-octave region of smoothness and balance really is, especially in light of the fact that this is a region where many other headphones (even some quite expensive ones) tend to exhibit frequency response peaks and troughs galore. In contrast, the LCD-2 sounds dead accurate throughout this region, with no hints of unevenness whatsoever.



The upper midrange and top end of the LCD-2 are also relatively smoothly balanced despite the aforementioned small peak just above 10kHz, although they are shelved downward in level somewhat. Some listeners will feel this characteristic gives the LCD-2 a slightly “dark sounding” cast, while others—especially those who find excess upper midrange/treble forwardness objectionable—will embrace the LCD-2’s tonal balance with open arms (er, ears). Note: Audeze says that its very recently release Rev 2 planar magnetic drivers offer even more neutrally balanced upper mids and highs—so that you may find that current production LCD-2’s offer even more accurate balance than the Playback review samples did.*

* Audeze has graciously agreed to let us try a set of LCD-2’s fitted with the new drivers, so readers can expect a small follow-up review a few weeks from now.

Two overarching, and breathtaking good, characteristics we observed in the LCD-2 involve the related qualities of resolution and focus. If you listen closely to the Audeze headphone, you’ll discover that they reach way down deep into the mix to reproduce extremely subtle textural and timbral details that most headphones—including many top-tier models—simply miss. They also offer almost blindingly fast transient speeds, so that it becomes absolute

child's play to pick out even the smallest variations in attack and decay characteristics between instruments. The result is a greatly heightened sense of focus—as if the headphone is pulling you into closer and more intimate contact with the music, yet without sounding artificially exaggerated or “etched” in any way.

Where many audio products create the illusion of superior “detail” through tipped-up frequency response “bumps” in the upper midrange and/or treble region, the LCD-2 gives you the genuine article—superior resolution without any excess brightness at all. In fact, the LCD-2 pulls off one of the most difficult tricks in all of high-end audio, which is that it manages to sound highly detailed yet utterly relaxed and completely unstrained at the same time.



Unlike some otherwise great planar magnetic headphones (for example, the HiFiMAN HE-6's), the LCD-2 is fairly sensitive and comparatively easy to drive. In practice this means that the LCD-2 can and does deliver a full-bodied sound and full-throated dynamics when powered by good by not necessarily high-powered headphone amps that would never have enough dynamic “oomph” to be able to power the HiFiMAN HE-6's properly. What is more, the LCD-2 responds beautifully to demanding dynamic swells in the music, delivering dynamic clout on demand. This is one area where I've found that top-shelf planar magnetic headphones generally seem superior to electrostatic headphones. Specifically, my sense is that with the better planar magnetic design output levels scale quite faithfully with the demands of the music, where with electrostatic models output scales accurately to a point, but ultimately seems to reach a point beyond which the sound can become a bit congested or compressed.

Finally, let me mention one specific performance characteristic that can, under ideal circumstances, make the LCD-2's sound downright magical. The characteristic to which I refer is one where the broad middle of LCD-2's midrange sounds positively luminous (and let me acknowledge a debt to Stereophile reviewer Sam Tellig, who once wrote about the midrange of SET [single-ended triode] amplifiers sometimes having this same illuminated-from-within quality). All I know is that when this quality manifests itself—as it often does when you hear good recordings through the LCD-2—you may feel, as I did, an unusually intense and vivid connection to the music. This is what truly makes the LCD-2 special.

MUSICAL EXAMPLES

For my first example, I'd like to cite a passage from a very beautiful but also admittedly hard-to-find recording: namely, Zhao Jiazhen's *Masterpiece of the Chinese Qin from the Tang Dynasty to Today [Rhymoi]*. The Qin, for those of you not yet initiated to its wonders, is a fretless, typically seven-stringed, zither-like Chinese instrument that is ancient in origin, and whose voice spans a surprisingly wide range of frequencies and an almost limitless range of expressive possibilities. One reason this is so is that, I am told, the tradition in written music for the Qin is to describe not only the pitch and duration of notes to be played (and at what volume levels), but also to describe incidental playing sounds such as finger squeaks on strings, the speed and intensity of note bends, the attack and decay characteristics desired, and so on. The result is a single instrument that, whether played solo or in an ensemble, can seem almost a musical world unto itself, which makes it a revealing test for most any audio component.



One track that shows off many of the LCD-2's strengths is "Deep Night", which is actually a somewhat non-traditional piece in which to hear a Qin used (much of the music written for the Qin has a quiet, contemplative quality, but this piece does not).

The piece opens with an ominous, extended, rolling solo statement from a very low pitched drum called a Dagu. If you listen closely to the Dagu, you'll hear the LCD-2 capture each small variation in attack and decay, the delicate "skin" sounds of the large drum head resonating, the deep fundamental pitch of the notes, and the almost tsunami-like way in which bass energy continues to billow outward into the recording space long after each note

has been struck. It takes a headphone with superb bass extension, pitch definition, transient speed, and control to get this passage to sound right, and the LCD-2 does a simply fabulous job with it.

But after the Dagu's solo statement has been given time and space to develop, the Qin makes a dramatic entry, and in Zhao Jiazhen's expert hands, manages to sound bold, fierce and defiant—in its own way answering the power and intensity of the drum. What's impressive is the way the artist chooses at times to limit some of the small flourishes so typical of the Qin, instead giving individual notes more power and purity by deliberately leaving them unadorned and allowing them to ring forth. Adding to the richness of the performance are a handful of other small percussion instruments, including a high-pitched wood block, what sounds like a smaller drum (something about the size of snare drum or even smaller), and delicate finger chimes. The LCD-2 brilliantly captures the distinctive timbres and textures of the Qin and percussion accompaniment, though because of the Audeze's downward-shelved upper mids and highs the sound of high-pitched echoes, overtones, and transient sounds is slightly less prominent through the LCD-2 than through some competing top-tier headphones. But note that the LCD-2 does offer plenty of treble extension, *per se*; it's just that upper mids and highs are presented at a slightly lower level than bass and middle frequencies.

Lovely though the LCD-2 can be on refined and well-recorded material, it is also perfectly happy to get down'n'dirty with more earthy types of music, as you discover if put on a track such as "Angel of Darkness" from Hot Tuna's *Steady As She Goes* [Red House]. The song launches on the strength of a rolling drum kit groove supplied by percussionist Skoota Warner, plus the insistent twang of Jorma Kaukonen's guitar and Jack Cassidy's gritty yet also supple electric bass lines. The feel of the song, which the LCD-2 nails to a "T", is a sort of cross between a folk jam and a late night roadhouse. Adding to this impression are Kaukonen's penetrating vocals as he sings, "What kind of evil, baby/I don't want to know/would poison your waters/just when they begin to flow?" But the song really takes off on the chorus, when Kaukonen is joined by backing vocalists Larry Campbell (who helped write the song) and Teresa Williams. Through the LCD-2 instrumental and vocal separation is incredibly good, so that's ever so easy to hear the individual contributions of each performer, and to hear—in this case—the way Campbell's and Williams' vocals perfectly support and augment Kaukonen's. Trust us on this one: you'll get chills up your spine when they sing, "Innocent life/trapped in the night/Angel of Darkness..." Remember, emotional connection with the music is what these headphones are all about.

OVERVIEW

Consider this headphone if: you want a beautifully made, sumptuously comfortable headphone that offers an extremely high degree of resolution and finesse, and whose overall balance is mostly neutral, though shelved downward just a bit in the upper mids and highs—thus giving a slightly warmer-than-neutral tonal balance. Especially consider this headphone if you enjoy spectacularly good bass and midrange reproduction. On good material, the midrange of this headphone seems almost to glow from within. Also consider this headphone if you've wanted to try a planar magnetic design, but have been frightened away by reports that they are hard to drive; surprisingly, the LCD-2 is relatively easy to drive.

Look further if: you favor compact headphones that offer a high degree of isolation from external sounds. The LCD-2 is comfortable, but also quite large—a characteristic some might find not to their liking. Also, the LCD-2 is an open-back design that lets room noises through and that allows the headphone itself to be heard from the outside when it is playing. Finally, look further if you require strictly neutral upper midrange and treble tonal balance. Lovely and euphonic though the LCD-2 is, there are competing headphones that

offer somewhat more neutral tonal balance (e.g., the Beyerdynamic T1 Tesla or HiFiMAN HE-6).

Ratings (relative to comparably priced headphones):

- Tonal Balance: 9
- Frequency Extremes: Bass, 10; Treble, 9
- Clarity: 10
- Dynamics: 10 (though you will need a good amp to probe the LCD-2's limits)
- Comfort/Fit: 8.5
- Sensitivity: 7 (the most sensitive planar magnetic headphone we have tested thus far)
- Value: 10

BOTTOM LINE:

Audeze's LCD-2 is hands down one of the five best headphones Playback has ever tested. What is more, recent driver revisions from Audeze may mean that the versions you would buy could sound even better than our review samples did, which is saying a mouthful. If you are shopping for a true top-tier class headphone, you owe it to yourself to hear this one before making a final decision.

SPECS & PRICING

Audeze LCD-2 Planar Magnetic Headphones

Accessories: as above.

Frequency response: 5Hz – 20kHz (with “usable high frequency extension to 50kHz)

Weight: Not specified

Sensitivity: 91 dB (1 mW input)

Impedance: 50 ohms

Price: \$945 (\$995 with leather headband pad option), can be ordered with wood presentation case or travel case.

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