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PERSONAL LISTENING

USB DACs & AMPLIFIERS

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HIGH-END HEADPHONES

from Audeze & Sennheiser

ASTELL&KERN'S PORTABLE PLAYER UPDATED

ARCAM'S REMARKABLE rBLINK BLUETOOTH DAC

*The exquisite
Audeze LCD-X
headphones*

*Larger-than-life
sound, but
pictured
actual size*



JOHN ATKINSON

Audeze LCD-X

HEADPHONES

I well remember my first “real” headphones: a pair of Koss Pro4AAs that I bought back in 1970. The Kosses were relatively expensive, but, like headphones today, they allowed an audiophile with limited cash to get a taste of high-end sound that was not possible with a speaker-based system. I bought the Pro4AAs because I had become fascinated with how the images of the instruments and singers were strung along a line between my ears inside my head. It seemed so much more intimate—a more direct connection with the music—than playback through loudspeakers. And in those early days of recording rock music in stereo, engineers were doing crazy things like panning instruments from side to side, and more—toward the end of “For Haven’s Sake,” from Richie Havens’s 1969 album *Richard P. Havens, 1983* (UK LP, Verve Forecast 2317 027), the entire soundstage was repeatedly panned from left to right and then from right to left with additional reverb, the idea being that the musicians are rotating in a lateral circle around the singer and bass guitar. Through headphones, the effect was mind-blowing! (And still is—check out the needle drop at www.youtube.com/watch?v=uadzEwGqxcQ&feature=kp.)

Headphones have been a regular part of my music listening ever since, though the reliably unreliable Kosses were replaced by Sennheiser HD420s in the early 1980s, then by Sennheiser HD580s and Sony MDR7506s in the 1990s, Sennheiser HD600s in the early 2000s, and finally Sennheiser HD650s.¹ My headphone experience changed, however, when, following the purchase of my first iPod, I began using in-ear monitors, culminating in Ultimate Ears 18 Pros and JH Audio JH16 Pros, both of which have bodies molded to fit the dimensions of my ear canals. But I’ve kept an eye on the world of traditional headphones, and noticed the rave reviews being received by models from Audeze (supposed to be pronounced *odyssey*, though I tend to say *ord-ease*).

1 Other than the sound quality, one reason I’ve stuck with Sennheisers over the years is that almost all the parts are replaceable. Unlike with regular audio components, the listener wears headphones, which means they come in for a lot of physical abuse.

Stephen Mejias mentioned, in his December 2013 “The Entry Level” (www.stereophile.com/content/entry-level-36), that even mainstream music commentator Bob Lefsetz had enthused about Audeze headphones—so I felt it was time I auditioned a pair. I asked for a sample of the new Audeze LCD-X (\$1699), a model premiered at last fall’s Can Jam/Rocky Mountain Audio Fest.

The LCD-X

These large headphones have planar-magnetic drive-units² with a thin-film diaphragm energized by an array of powerful neodymium magnets on both sides. They employ Audeze-patented Fazor elements that are said to guide and manage the flow of sound in the headphone. The circular drivers, which measure 6.17 sq. in. in diameter, are housed in polished, black-anodized aluminum earpieces, with generously sized pads made either from lambskin (as were mine) or leather-free, “microsuede” filled with foam. These pads are large enough to fit entirely around the pinnae—even mine, which are on the large side—and are very comfortable. Adjustment is via notched, chromed metal rods attached to each earpiece, which fit into the sprung, leather-covered headband.

Electrical connection is via a mini-XLR/Micro-dot XLR for each channel, these very subtly marked L or R. The connecting wire keeps the two channels’ signal and ground wires separate up to the ¼" stereo jack plug. An adapter is provided for use with 3.5mm stereo jacks, as is an alternate cable fitted with a four-pin XLR plug. The headphones and accessories come in a small SKB case, and the total feel is one of luxury, as is appropriate for a pair of headphones costing a dollar short of \$1700.

Listening

During the auditioning period, I was belatedly mixing the

2 The last time I auditioned planar-magnetic headphones was in 1978. I had borrowed a pair of the excellent PWBs, designed and manufactured by one Peter W. Belt, later to find fame, if not fortune, with his alternate-reality “tuning” accessories.

SPECIFICATIONS

Description Circumaural (over-the-ear) headphones with planar-magnetic drive-units using neodymium magnets, and earpads of premium lambskin leather or leather-free, “microsuede”

fabric. Supplied accessories: ADZ6SE cable (single-ended ¼" TRS to 2x4-pin mini XLR), ADZ6B4 cable (balanced 4-pin XLR to 2x4-pin mini XLR), ¼"-to-1/8" adapter, SKB travel case.

Cable length 94" (2.5m). Weight: 37.5 oz. (600gm).

Serial number of unit reviewed None found.

Price \$1699. Approximate number of dealers: >30.

Manufacturer Audeze LLC, 10725 Ellis Avenue, Unit E, Fountain Valley, CA 92708. Tel: (657) 464-7029. Fax: (702) 823-0333. www.audeze.com.





Though the LCD-X weighs 600gm, it is surprisingly comfortable, found JA.

May 2013 concert by Bob Reina's jazz ensemble Attention Screen, using Adobe Audition running on a Windows 7 PC fitted with a Lynx soundcard to feed an AES/EBU digital datastream to my Benchmark DAC1. I always do the first mixes of my recordings using headphones, though the perceived relationship between the loudnesses of sounds at the sides and those in the center is different from what I hear through speakers. I always start a rock or jazz mix with just the drums and bass guitar or double bass. The spatial spread of the drums is the canvas on which I will paint my picture, and the bass is literally the music's fundamental instrument.

Using the Audeze LCD-Xes, the basic drum mix was straightforward. I had my usual four mikes on Mark Flynn's kit: an AKG D112 in front of the kick drum, a Shure Beta 98 close to the snare drum's top skin, and a pair of Shure SM81s in an ORTF pair over the cymbals and toms. I also had a distant ORTF pair of DPA 4011 cardioids in front of the church's altar

platform, on which the musicians were playing, and through the LCD-Xes, this pair gave me an unambiguously stable picture of the drums, which were positioned to the audience's left. I could therefore pan the close drum mikes to the correct places in the soundstage.

It was more complicated with Chris Jones's double bass. Chris was standing audience right, in front of his Trace Elliott amp, from which I had taken a direct feed. Again I had the reference for its position in the soundstage from the distant pair of DPA mikes, but now I had to deal with significant bleedthrough of the bass into the DPA 4003 omnis I was using to pick up the sound of the pipe organ. But with the accuracy of the Audeze LCD-Xes' imaging, I could readily distinguish among the sounds of the five mike channels that contributed to the sound of the double bass. I could therefore play with the panpotting and levels of those five channels to construct a realistic-sounding, correctly positioned image of the bass. Only then did I add Liam Sillery's trumpet or flugelhorn and Bob Reina's pipe organ, the resolution of these instruments aided by the Audezes' lack of coloration in the midrange and treble.

Once the mixes were finished, for my regular music listening I retrieved from storage the sample of the HeadRoom BlockHead headphone amplifier I'd bought following Jonathan Scull's rave review in July 2002. The dual-mono BlockHead uses a three-pin XLR jack for each channel's input; fortunately, Audeze sells an adapter cable (\$60) with a four-pin XLR on one end and dual three-pin XLRs on the other. I used the BlockHead without its proprietary crossfeed processing bypassed, and with its high-frequency equalization set to None.

A track I played during my 2013 presentations at audio shows and audiophile-society meetings was Eriks Esenvalds' *O Salutaris Hostia*, from the album *A Drop in the Ocean*, by the Portland State Chamber Choir conducted by Ethan Sperry (16-bit/44.1kHz master file for CD, PDK-C-01). I had mastered this CD for *Stereophile's* Erick Lichte, who had both edited the recording and produced some of the sessions. Massed voices are very difficult for audio systems to reproduce, because the spectrally rich content is sensitive to intermodulation distortion. This can be particularly problematic with headphones, because using a single drive-unit to cover the entire audioband runs the risk of intermodulation.

MEASUREMENTS

I don't measure headphone acoustic responses, as this requires a dummy-head-and-microphone system: see Keith Howard's article on this subject in the August 2008 issue, www.stereophile.com/features/808head/index.html. In addition, as Keith wrote, deciding what, precisely, is the optimal frequency response for a pair of headphones is neither obvious nor trivial.

I used *Stereophile's* vintage Audio Precision System One to measure the Audeze LCD-X's impedance and electrical phase (fig.1). The solid trace in this graph shows the impedance magnitude with the headphones mounted on my head facing my ears.

The impedance in the audioband is close to 22 ohms.

The electrical phase angle is also close to 0° across the audioband. Oth-

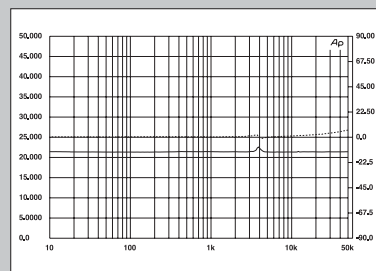


Fig.1 Audeze LCD-X, electrical impedance (solid) and phase (dashed) with headphones mounted against JA's head and ears (5 ohms/vertical div.).

er than a small peak at 4kHz, which at first I thought was due to my ear-canal resonance—until I noted that it was also present in the free-space measurement—the LCD-X's impedance was commendably constant with frequency. The headphone's frequency response will not alter with frequency when driven by a source with a high output impedance, like my Astell&Kern player. However, this relatively low impedance will mean that the Audeze headphones will work best when driven by an amplifier with a low output impedance. My HeadRoom BlockHead, which has an impedance of less than 1 ohm, was perfect in this respect.—John Atkinson

ASSOCIATED EQUIPMENT

Digital Sources Astell&Kern AK100 portable media player; Apple 2.7GHz i7 Mac mini laptop running OS10.7, iTunes 10, Pure Music 1.89, Audirvana Plus 1.5.10, JRiver Media Center 19 for Mac; Shuttle PC with Lynx AES16 soundcard & dual-core AMD Athlon processor running Windows 7, Adobe Audition 3.0; Arcam rBlink Bluetooth D/A converter; Auralic Vega D/A converter.
Headphone Amplifiers HeadRoom BlockHead, Benchmark DAC1, ASUS Xonar Essence One Muses Edition, Meridian Prime with Prime power supply.
Headphones Sennheiser HD650 & HD800.
Cables Digital: Kubala-Sosna Elation! AES/EBU, AudioQuest Coffee, Belkin Gold USB. Interconnect (balanced): AudioQuest Wild, Kubala-Sosna Elation! AC: manufacturers' own.
Accessories Audio Power Industries 116 Mk.II & PE-1, APC S-15 AC line conditioners (computers, hard drive); AC power comes from two dedicated 20A circuits, each just 6' from breaker box.—John Atkinson

Driven by the BlockHead, however, the Audeze headphones reproduced this recording with stunning smoothness. The clearly presented interplay between the two similar-sounding sopranos in *O Salutaris Hostia*, one positioned mid-left, the other mid-right, raised goose bumps every time I listened to it. And even with the closely miked and multitracked Phil Collinses in “Tearing and Breaking Down,” from *Johnny Boy Would Love This... A Tribute to John Martyn* (256kbps AAC file), I could follow each of the vocal lines with the BlockHead-powered LCD-Xes more readily than when they were conventionally connected with a ¼" jack plug.

As always when I review a transducer of some kind, I check the low-frequency behavior by playing the half-step-spaced tonebursts on *Editor's Choice* (CD, Stereophile STPH016-2). Driven by the Benchmark DAC1, the Audeze LCD-Xes spoke cleanly and evenly in the bass, with no doubling (second-harmonic distortion) audible—a difficult test for headphones to pass. These tones stop at 32Hz; the ½-octave warble tone at 25Hz was also clean, and I could just hear the tone at 20Hz at normal listening levels.

Sennheiser Comparisons

For my comparisons, I used my Benchmark DAC1, with its two headphone outputs, fed S/PDIF data via TosLink. I did my best to match playback levels with pink noise, but with the lower sensitivities of the Sennheisers compared with the Audezes, this was a little more approximate than I would have liked.

At \$500, the Sennheiser HD650s are less than a third the price of the LCD-Xes, but they've been my reference headphones for the past 10 years or so. Some have said that the HD650s are too polite and lacking in the top octave, but I've always found their balance easy on the ear—a positive factor in prolonged listening sessions.

Tonally, the HD650s sounded very similar to the LCD-Xes. In “Fever,” from the Tierney Sutton Band's *Desire* (ALAC files ripped from CD, Telarc CD-83685), Sutton's voice sounded very close through both sets of headphones. The duetting double basses in this track, however, sounded a little constrained and too tubby with the Sennheisers, with less low bass apparent. As much as I enjoyed the HD650s, the LCD-Xes retrieved more detail from this beautifully recorded track. There was more space around the snare drum, and the closer

perspective on the hi-hat cymbals compared with the snare was more obvious. Round One to the LCD-X.

Sennheiser's HD800 headphones, at \$1500, go almost head-to-head with the \$1699 Audezes. In his July 2009 review (www.stereophile.com/headphones/sennheiser_hd800_headphones/index.html), Wes Phillips declared that the HD800 “very well may be the best headphone I've ever heard.” Wes commented on “how nuanced [were] the shades of soft and softer—and loud and louder—[were] through the HD800s.” Such was also my experience with a borrowed pair of HD800s. In Paul Young's treatment of the Daryl Hall classic “Every Time You Go Away,” from *Super Hits* (256kbps MP3), both the electric sitar and Pino Palladino's fretless bass guitar were reproduced with convincing verisimilitude by the HD800s. But against the Audezes, the Sennheisers sounded somewhat brighter and less laid-back, a balance that was less forgiving of the splashy-sounding snare drum and cymbals in this 1980s recording. Beth Orton's breathy voice in her reading of “Go Down Easy,” from the John Martyn tribute (256kbps AAC file), sounded slightly more sibilant through the HD800s than the LCD-Xes, though with noticeably more extended extreme highs. Although the Audezes were darker than the Sennheisers, they were as good at revealing fine recorded detail. In fact, the LCD-Xes reminded me of the recorded detail that could be heard with Stax's Lambda electrostatics, with the important difference that I didn't become fatigued after long listening sessions, as I used to with the Lambdas.

The LCD-Xes scored when it came to the low frequencies. The HD800s are excellent at bass weight and definition, but with “Get Lucky,” from Daft Punk's *Random Access Memories* (24/88.2 AIFF, Columbia/HDtracks 88883716862), there was more of a growl to the bottom octaves of Nathan East's bass guitar, and slightly better differentiation between the sounds of the bass guitar and kick drum. This edge in low-frequency performance also allowed the LCD-Xes to present a slightly more convincing sense of hall ambience with the Portland State Chamber Choir recording.

“O Salutaris Hostia” sounded deliciously smooth through both headphones; both allowed me to hear deep into the delicate acoustic of the Queens church where I'd recorded Bob Reina's band; both were equally revealing of the reduction in sound quality resulting from downsampling when I played 96kHz files without Pure Music and with the Mac set to 44.1kHz; and both were equally comfortable for long-term listening. Which headphones will be preferred for midrange and high-frequency reproduction will come down to personal taste. For me, its performance in the low frequencies swung the needle toward the Audeze LCD-X.

Conclusion

Although, to my surprise, the Astell&Kern AK100, with its output impedance of 22.5 ohms, could still drive the Audeze LCD-Xes to satisfactorily high levels, I will stick with the Ultimate Ears and JH Audio IEMs for music on the move, as both models provide the necessary suppression of external noise. But for listening at home, the beautifully finished and equally beautiful-sounding Audeze LCD-Xes have seduced me away from my allegiance to Sennheisers. Highly recommended! ■

The beautifully finished and equally beautiful-sounding Audeze LCD-Xes have seduced me.