

ART DUDLEY

# Klipsch Klipschorn AK6

## LOUDSPEAKER

This almost happened 13 years ago. Thinking the time was right for a Klipschorn review—2006 was the 60th anniversary of its design—I got in touch with a Klipsch representative, who requested photos of my room and details of its size and construction style. My reply was followed by a three-day lag in correspondence, after which came the disappointing news: “We’re sorry. It won’t work.” The problem: There were bass-radiators too near the corners of the room where the speakers would be installed; consequently, the Klipschorns couldn’t be snugged all the way against those corner walls—an iron-clad requirement for their use.

I was disappointed but impressed; my contact at Klipsch, who was unfailingly cordial and eager to help, turned his back on a generous helping of free publicity, based on his and his company’s integrity: They knew the Klipschorns wouldn’t have worked as advertised in that setting. Good for them! I live somewhere else.

### Backstory

That old room wouldn’t have worked because the Klipschorn is the rare loudspeaker whose woofer is horn-loaded—yet that horn is *completed* by the adjacent walls of the 90-degree room corner in which it must be located. Without those surfaces, the horn is cut nearly in half. Why did they make it this way? By omitting from the original Klipschorn two very large, flat expanses of wood, designer Paul W. Klipsch was able to keep its weight down to approximately 150lb; had it been any heavier—or larger—smaller would likely have suited.

Why did Klipsch bother making a full-range horn at a time when more compact full-range loudspeakers were already appearing on the market? Because among all extant types of loudspeakers, a horn is by far the most efficient—a characteristic Paul Klipsch defended in a 1954 interview: “Why efficiency? Well, amplifiers are cheap—we really

don’t need high efficiency in a loudspeaker system for the purpose of getting more horsepower output. We could just put more horsepower in from the amplifier. But when we achieve higher efficiency in the speaker, it achieves a lower distortion.”

The mechanism, though difficult to perfect, is easy to understand: A loudspeaker driver is a notoriously inefficient thing, owing to a severe impedance mismatch between its diaphragm and the volume of air in the listening room; a horn acts as a transformer between the two, making it far easier for the vibrating diaphragm to get a “bite” on the air. The result is an increase in efficiency so drastic that approximately 1% or 2% to nearly 50% for a properly designed horn—that the diaphragm’s excursions can be kept extremely low, allowing the driver to operate within its most linear range.

The first Klipschorn, which hit the market in 1947, was a two-way, single-cabinet speaker in which frequencies below 400Hz were reproduced by a 12” woofer loaded with a bidirectional folded horn, the mouth of which was, as described above, formed by the space between the Klipschorn’s plywood bass cabinetry and the user’s corner walls. (In use, said cabinetry was concealed from view and thus left unfinished.) Higher frequencies were reproduced by a permanent-magnet compression driver loaded with a 24”-wide exponential horn made of phenolic-impregnated wood. In the late 1950s, the wooden midrange horn was replaced with a new Klipsch-designed aluminum horn—dubbed the K400—now augmented with a separate, smaller horn mounted within its mouth for the treble range; those two horns now got to share a cabinet of their own, and the bass cabinet’s 12” woofer was replaced with a 15” one.

A number of running changes were made in the intervening years. During the Klipschorn’s uncanny long run,

1 See [youtube.com/watch?v=wmMkQ77Td](http://youtube.com/watch?v=wmMkQ77Td).  
2 Actually the early 1960s. —Editor

## SPECIFICATIONS

**Description** Three-way, horn-loaded loudspeaker. High-frequency driver: Klipsch K-77T1 compression driver with 1” polyimide diaphragm, loaded with a polymer Tractrix horn. Mid-range driver: Klipsch K-55-X compression driver with 2” phenolic diaphragm, loaded

with a polymer exponential horn. Bass driver: Klipsch 15” K-33-E woofer with fiber-composite cone, loaded with 8” bidirectional folded horn. Crossover frequencies: 450Hz and 4.5kHz. Sensitivity: 105dB/2.83V/m. Nominal impedance: “8 ohms compatible.” Frequency

response: 33Hz–20kHz, ±1dB. **Dimensions** 53” (134.6mm) H by 31.25” (79.4mm) W by 28.25” (71.75mm) D Weight: 220lb (100kg). **Finishes** Satin black ash, American walnut, Natural cherry. Serial numbers: 106644619150001 and

106644619150002. **Price** \$14,999/pair. Approximate number of units: 70. **Warranty:** 5 years. **Manufacturer** Klipsch Group, Inc., 3502 Woodview Trace, Indianapolis, IN 46268. Web: [klipsch.com](http://klipsch.com). Tel: (317)860-8100.



KLIPSCH HERITAGE SERIES KLIPSCHORN

its drivers have been sourced from various manufacturers, including Universal, Electro-Voice, and others. The filters comprising the crossover network were changed a few times from the gentle 6dB slopes of the original two-way Klipschorn to much steeper slopes in later, three-way versions. And over the years, many small cosmetic details were altered. But according to head designer Roy Delgado, who began his career working closely alongside Paul Klipsch—their relationship with the company for 33 years—“the Klipschorn’s low-frequency horn is the one thing that has changed the least. I have modified its design only slightly, only to make it easier to build consistently well—‘Tab A goes into slot B’ sorts of things.”

According to Delgado, his ongoing work with Klipsch’s five core Heritage models—the Heresy, the Forte, the Cornwall, the La Scala, and the Klipschorn—is guided by an overarching principle: “I want to do what Paul wanted, not what Roy wants.”

One might safely say that recent interest in low-power tube amps has revealed interest in those models; at the

same time, the recent success of hi-fi/vinyl bars, themselves inspired by Japan’s long-lived and similarly outfitted jazz cafes, has also rekindled interest in large, horn-loaded loudspeakers. One supposes this is a good time to be young, hip, and devoted to serious listening; not coincidentally, one supposes, too, that this is a good time to be Klipsch.

## MEASUREMENTS

Because the Klipschorn AK6’s bulk—each weighs 220lb—I drove my test gear where the speakers would be placed and measured the speaker sitting on a furniture dolly in its driveway. I used DRA Labs’ MLSSA system and a calibrated DPA 4006 microphone to measure the Klipschorn’s behavior in the farfield and an Earthworks QTC-40 mike for the nearfield responses.

Klipsch specifies the Klipschorn’s sensitivity as 105dB/2.83V/m, which is the standard high-midrange sensitivity of 101dB(B)/2.83V/m, but this is still the second-highest sensitivity of all the speakers I have measured over the past 30 years. (The highest was the Auditorium 23 Hommage Cinema, which features a measured voltage sensitivity of 102dB(B)/2.83V/m.) The Klipschorn’s sensitivity is a whopping 18.6dB/5a1 always measure at the same time I test a speaker (to ensure that I have not made an error in my setup).

This speaker will play loudly even with flea-powered amplifiers driving it. And at typical listening levels, the drive-unit diaphragms will hardly be moving, which implies low distortion.

Klipsch specifies the Klipschorn’s nominal impedance as “8 ohms compatible.” This is optimistic: Not only does the speaker’s impedance magnitude (fig.1, solid trace) drop to 3 ohms in the midbass and 2.7 ohms in the upper bass, but the electrical phase angle (dotted trace) is sometimes extreme. There are current-demanding combinations of 4.1 ohms and -43° phase angle at 44Hz and 4.1 ohms and +43° phase angle at 139Hz. Despite its very high sensitivity, the Klipschorn will not be at its best with amplifiers that are not comfortable driving 4 ohm loads.

In addition, the very large differ-

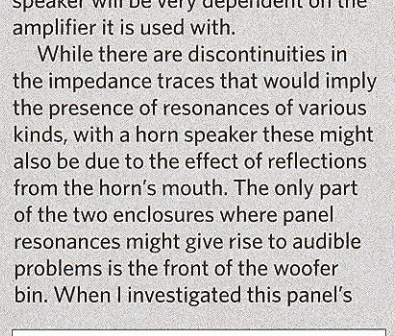


Fig.1 Klipsch Klipschorn, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

ence between the average impedance in the bass and the rise to 20V ohms at 1.5kHz means that the speaker’s perceived tonal balance will be very dependent on the amplifier’s output impedance. For example, as I always do, I used my solid-state Krell KSA-50 amplifier for the acoustic measurements, which has a measured output impedance of 0.13 ohms from 10Hz to 20kHz. To investigate the interaction between the Klipschorn’s impedance and the amplifiers used to drive it, I measured the speaker’s axis with response on its tweeter axis with the Krell (see

1 See [stereophile.com/content/auditorium-23-hommage-cinema-loudspeaker](http://stereophile.com/content/auditorium-23-hommage-cinema-loudspeaker).

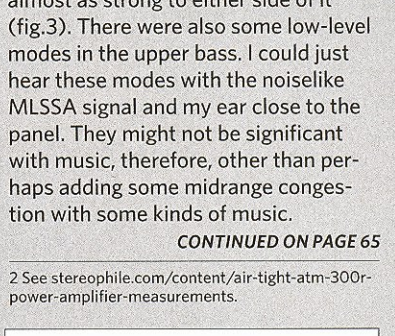
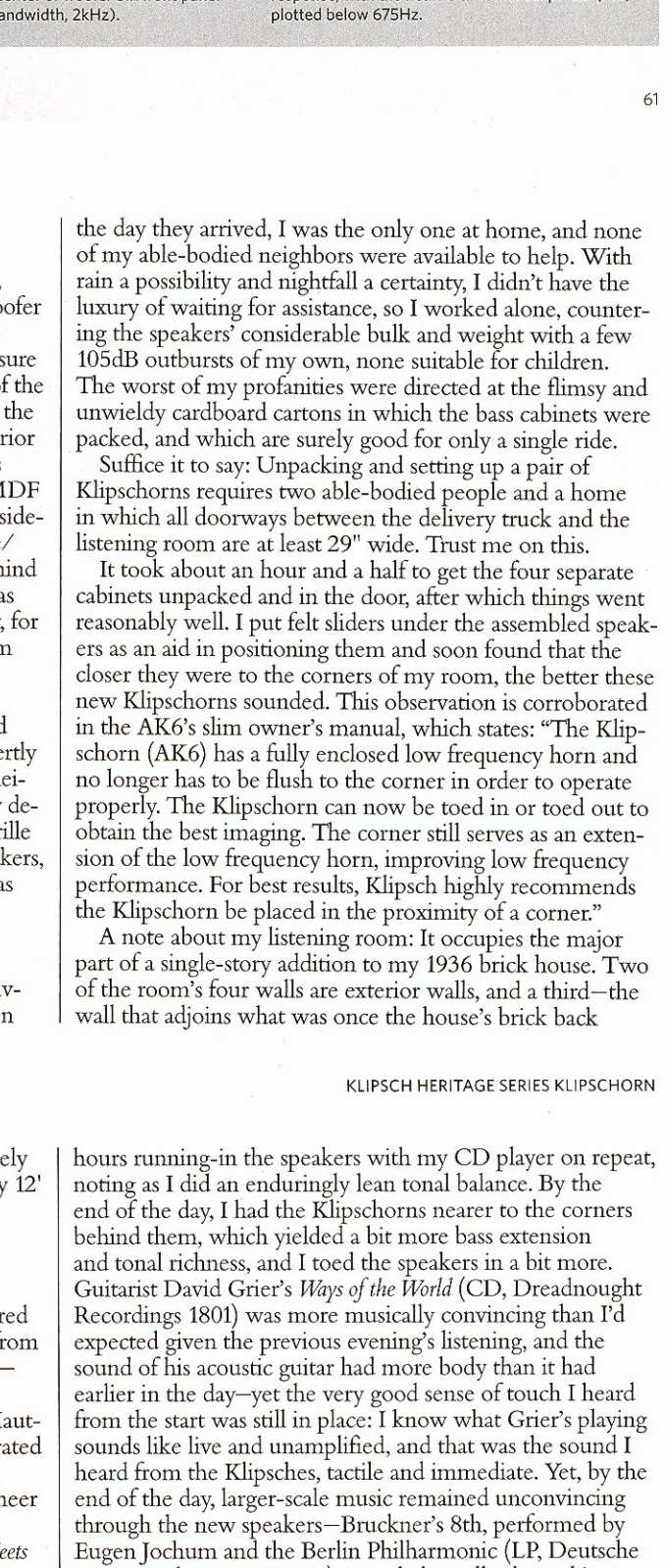


Fig.2 Klipsch Klipschorn, difference in the anechoic response, 300Hz–20kHz, on tweeter axis at 50° due to substitution of a Shindo Haut-Brion amplifier for a Krell KSA-50 (5dB/vertical div.).

last year, they introduced a new, easier-to-install version of the world’s most long-lived commercial loudspeaker. In the new Klipschorn AK6 (\$14,999/pair), the bass horn has been completed with the addition of three large MDF panels, plus additional internal bracing. Thus one can accurately describe the Klipschorn AK6, which is 45lb heavier than the standard Klipschorn—production of which has now ceased—as a corner horn that comes with its own corner.

**Description** The Klipschorn AK6 is a three-way, fully horn-loaded loudspeaker of considerably greater-than-average size and sensitivity: It measures approximately 53” high by 31” wide and 28” deep, tips the scales at 220lb each, and is said to require only 1W of power to produce a sound pressure level of 105dB, which is on a par with a jack hammer, a gas-powered chainsaw, and a five-string banjo.

Long before such observations became fashionable, Paul Klipsch was known for his sound and music resides mostly in the midrange; for reproducing the approximately 3.25 octaves between 450Hz and 4.5kHz, the AK6 uses a compression driver with a 2” phenolic diaphragm, loaded with an exponential horn molded from rubber-impregnated ABS plastic, with a 165” wide by 5.5” high mouth. Installed just above a horn is a far smaller horn—its mouth is 4.25” by 1.75”—molded from fiberglass-impregnated ABS plastic in



the user’s amplifier.

My review pair appeared very well-made, their cherry veneer—visible mostly on the front of the bass cabinet and the top of the midrange/treble cabinet—having been expertly hand-painted by the color department to accurately describe the Klipschorn AK6’s gorgeously, vintage-inspired grille fabric; suffice it to say, I never tired of gazing at these speakers, with or without a soundtrack. Their styling is as timeless as anything from Stickley, Jaguar, Rolex, or Savile Row.

**Installation and setup** I’ll draw the curtain of charity over my experiences receiving, unpacking, and assembling the Klipschorn AK6s: On

the day they arrived, I was the only one at home, and none of my able-bodied neighbors were available to help. With a rainy possibility and nightfall a certainty, I didn’t have the luxury of waiting for assistance, so I worked alone, countering the speakers’ considerable bulk and weight with a few 105dB outbursts of my own, none suitable for children.

The worst of my profanities were directed at the flimsy and unwieldy cardboard cartons in which the bass cabinets were packed, and which are surely good for only a single ride.

Suffice it to say: Unpacking and setting up a pair of Klipschorns requires two able-bodied people and a home in which all doorways between the delivery truck and the listening room are at least 29” wide. Trust me on this.

It took about an hour and a half to get the four separate cabinets unpacked and in the door, after which things went reasonably well. I put felt sliders under the assembled speakers as an aid in positioning them and soon found that the closer they were to the corners of my room, the better these new Klipschorns sounded. This observation is corroborated in the AK6’s slim owner’s manual, which states: “The Klipschorn (AK6) has a fully enclosed low frequency horn and no longer has to be flush to the corner in order to operate properly. The Klipschorn can now be in or toed out to obtain the best imaging. The corner stool serves as an extension of the low frequency horn, improving low frequency performance. For best results, Klipsch highly recommends the Klipschorn be placed in the proximity of a corner.”

A note about my listening room: It occupies the major part of a single-story addition to my 1936 brick house. Two of the three walls are exterior walls, and a third—the wall that adjoins what was once the house’s brick back

yard, is effectively an exterior wall, making this an extremely sturdy, stiff-walled room. The room measures 17’ long by 12’ wide, with an 8” ceiling.

**Listening** I began with the backs of the Klipschorn AK6s a short distance from the front wall—their front surfaces, measured at the centers of the cabinets, were a little more than 3’ from that wall, and a little more than 8’ apart from each other—the first act to the last: The bass driver, which signals the death of pentodes and without feedback, to deliver 20Wpc.

That first evening of listening was a mixed bag. The sheer tactile immediacy and startling clarity of the solo tenor saxes on Sonny Rollins and Coleman Hawkins’ *Sonny Meets Hawk!* (LP, RCA/Classic Records LSP-2712) were almost without precedent in my home. But there was very little bass, and musical involvement was compromised by a lack of coherence: Those remarkable sounds weren’t jelling into a comprehensible whole. We’re all heard, at one time or another, the effect where reproduced music sounds uncannily convincing from just outside the room where the system is playing (something I associate with old Quad ESLs in particular)—yet when I stepped into the next room, I experienced the opposite effect: I could hear the instruments, but it took a couple of seconds for me to tell what piece of music was playing. (It turned out to be “All the Things You Are.”) I chalked it up to the need for additional running-in, of course.

The next morning I returned listening. I spent several

hours running-in the speakers with my CD player on repeat, noting as I did an enduringly lean tonal balance. By the end of the day, I had the Klipschorns nearer to the corners behind them, which yielded a bit more bass extension and tonal richness, and I toed the speakers in a bit more.

Guitarist David Grier’s *Twisted World* (CD, Dreadnought Recordings 1801) was more musically convincing than I’d expected given the previous evening’s listening, and the sound of his acoustic guitar had more body and more authority in the day—yet the very good sense of touch I heard from the start was still in place: I know what Grier’s playing sounds like live and unamplified, and that was the sound I heard from the Klipschorns, tactile and immediate. Yet, by the end of the day, larger-scale music remained unconvincing through the new speakers—Bruckner’s 8th, performed by Eugen Jochum and the Berlin Philharmonic (LP, Deutsche Grammophon 138 918-19), sounded totally skewed in a hollow sort of way and simply did not hold its attention. And deep bass was still AWOL. This too, I attributed to the need for additional running-in—much and the need for some fine-tuning of toe-in. I was partly right.

During the next couple of weeks, I found much to admire in the performance of the Klipschorns, which reproduced vocals with exceptional clarity and lack of coloration, and whose stereo imaging and soundstage capabilities were shockingly good for such small loudspeakers. Still, in light of the lack of bass, I wondered if the Shindo Haut-Brion, whose output I transformed here only single, 16-ohm secondary windings, might be a suboptimal match. That proved true when I replaced the Haut with the Air Tight ATM-300R (\$19,995), which uses a single 300B

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tube running-in the speakers with my CD player on repeat, noting as I did an enduringly lean tonal balance. By the end of the day, I had the Klipschorns nearer to the corners behind them, which yielded a bit more bass extension and tonal richness, and I toed the speakers in a bit more.

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