ART DUDLEY

Klipsch Klipschorn AK6 LOUDSPEAKER

his 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 baseboard 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! And now 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—sales would likely have 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:1 "Why efficiency? Well, amplifiers are cheap—we really SPECIFICATIONS **Description** Three-way with a polymer exponential horn-loaded loudspeaker. horn. Bass driver: Klipsch High-frequency driver: 15" K-33-E woofer with fiber-

Klipsch K-771 compression composite cone, loaded driver with 1" polyimide with 8' bidirectional folded diaphragm, loaded with a horn. Crossover frequencies: polymer Tractrix horn. Mid-450Hz and 4.5kHz. Sensitivrange driver: Klipsch K-55-X ity: 105dB/2.83V/m. Nomicompression driver with 2'

achieve higher efficiency in the speaker, it achieves a lower 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

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

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—from approximately 1% or 2% to nearly 50% for a properly extremely low, allowing the driver to operate within its most linear range. a two-way, single-cabinet speaker in which frequencies below 400Hz were reproduced by a 12" woofer loaded

designed horn—that the diaphragm's excursions can be kept The first Klipschorn, which hit the market in 1947, was 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 1950s², the wooden midrange horn was

replaced with a new Klipsch-designed aluminum horndubbed 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 uncannily long run, 1 See youtube.com/watch?v=xyMtlKQ7TtI. 2 Actually the early 1960s. - Editor response: 33Hz - 20kHz, \pm 106644619150002. Price \$14,998/pair. Approximate number of dealers: 70.

Dimensions 53" (134.6mm) H by 31.25" (79.4mm) W by 28.25" (71.75mm) D Weight: 220lb (100kg). Klipsch Group, Inc., Finishes Satin black ash, 3502 Woodview Trace, Indianapolis, IN 46268. American walnut, Natural cherry. Serial numbers: Web: klipsch.com.

Warranty: 5 years.

106644619150001 and Tel: (317)860-8100. September 2019 stereophile.com

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nal impedance: "8 ohms compatible." Frequency phenolic diaphragm, loaded

Klipshoun.

KLIPSCH HERITAGE SERIES KLIPSCHORN its drivers have been sourced from various manufacturers, including Universal, Electro-Voice, and others. The filters comprising its cross-over 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—and has now been 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 same time, the recent success of hi-fi/vinyl bars, themselves inspired by Japan's long-lived and similarly outfitted Heresy, the Forte, the Cornwall, the La Scala, and the Klipschorn-is guided by an overarching principle: "I want to do jazz cafes, has also rekindled interest in large, horn-loaded what Paul wanted, not what Roy wants." loudspeakers. One supposes this is a good time to be young, hip, and devoted to serious listening; not coincidentally, one One might safely say that recent interest in low-power tube amps has rekindled interest in those models; at the supposes, too, that this is a good time to be Klipsch.

Klipsch specifies the Klipschorn's

Klipschorn will not be at its best with

amplifiers that are not comfortable

In addition, the very large differ-

Stereophile Klipschorn (R) Impedance (ohms) & Phase (deg) vs Frequency (Hz)

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

driving 4 ohm loads.

ence between the average impedance

in the bass and the rise to 20.7 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

amplifier for the acoustic measurements, which has a measured output

do, I used my solid-state Krell KSA-50

impedance of 0.13 ohms from 20Hz to

20kHz. To investigate the interaction

between the Klipsch's impedance and

the amplifiers used to drive it, I mea-

sured the speaker's farfield response

on its tweeter axis with the Krell (see

Amplitude in dB

1 See stereophile.com/content/auditorium-23-hommage-cinema-loudspeaker.

Frequency in Hz

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Fig. 2 Klipsch Klipschorn, difference in the anechoic response, 300Hz–30kHz, on tweeter axis at 50" due to substitution of a Shindo Haut-Brion amplifier

for a Krell KSA-50 (5dB/vertical div.).

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.1) The Klipschorn's sensitivity is a whopping 18.6dB higher than the sensitivity of the BBC LS3/5a I always measure at the same time I test a speaker (to ensure that I haven't made an error in 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. stereophile.com - September 2019 The company seems to think so: In September of last year, they introduced a new, easier-to-install ver-

sion of the world's most long-lived commercial loudspeaker. In the new Klipschorn AK6 (\$14,998/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.

31" wide and 28" deep, tips the scales at 220lb each, and is said to require only 1W of power to produce measurements, continued later), then repeated the measurement with the tubed Shindo Haut-Brion am-

Fig.3 Klipsch Klipschorn, cumulative spectral-Air Tight, there was no low bass, and decay plot calculated from output of accelerom-eter fastened to center of woofer bin front panel the midbass sounded lightweight. Lowfrequency extension was still absent (measurement bandwidth, 2kHz). stereophile.com • September 2019 KLIPSCH HERITAGE SERIES KLIPSCHORN the top surface of the bass cabinet. listener sees only a large, unblemished expanse of wood, beautifully veneered, but behind it is a front-firing 15" woofer loaded by an 8'-long exponential horn. The horn's throat begins with a comparatively narrow slot—to increase pressure as well as to conform to the mathematical requirements of the

horn's predetermined rate of expansion-before directing the woofer's front wave both straight up and straight down, prior to traveling through the remainder of the horn, which is constructed with dozens of precisely cut plywood and MDF pieces. Portions of the cabinet interior are accessible via sidemounted grillework—as with the grille for the midrange treble cabinet, these are held in place with magnets-behind which one sees conduits for the internal wiring, as well as the crossover's output and input connectors, respectively, for the midrange and treble driver cables and the cables from 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

ther the vocabulary nor the color perception to accurately de-

scribe the Klipschorn AK6's gorgeous, vintage-inspired grille

with or without a soundtrack. Their styling is as timeless as

I'll draw the curtain of charity over my experiences receiving, unpacking, and assembling the Klipschorn AK6s: On

that wall, and a little more than 8' apart from each other-

and with the speakers slightly toed-in toward the center

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

of coherence: Those remarkable sounds weren't jelling into a comprehensible whole. We've all heard, at one time

or another, the effect where reproduced music sounds

bass, and musical involvement was compromised by a lack

listening seat. At first, I relied on my reference Shindo Haut-

Brion power amp, which uses push-pull 6L6 tubes, operated as pentodes and without feedback, to deliver 20Wpc.

That first evening of listening was a mixed bag. The sheer

anything from Stickley, Jaguar, Rolex, or Savile Row.

Installation and setup

wide, with an 8' ceiling.

fabric; suffice it to say, I never tired of gazing at these speakers,

flip-matched between the left and right speakers. I have nei-

Vienna Philharmonic (LP, Decca SXL 6236)—which I had listened to earlier in the day-and heard a welcome increase in the heft of the double basses and cellos, and a slight increase in the weight and force of timpani. When the symphony's predominant theme first emerged, the

double-bass notes underneath it had decent power and tautness, and the music's many subtle dynamic transitions came across believably and with good drama: I couldn't help thinking that the sounds from the Klipschorn's drivers were beginning to jell. But with the Air Tight amp I

heard grainy trebles during a couple of orchestral peaks. I tried an old recording of the Beethoven Op.127 string

quartet that's become my recent favorite-by the Ama-

triode per side-and just a touch of feedback-to produce 8Wpc. With the Klipsches connected to the Air Tight amp's low-impedance outputs, I turned to the superb recording of the Sibelius Symphony No.7 by Lorin Maazel and the

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 a Tractrix flare, driven by a compression driver with a 1" phenolic diaphragm. The midrange and treble drivers are mounted inside a 12"-tall upper cabinet, the four stiff rubber feet of which engage with recesses made for them in

with the Haut-Brion, but the midbass vibrational behavior with a plastic-tape now sounded in better balance with the accelerometer, I found a fairly strong resonant mode at 316Hz, with others midrange. The sound of this loudspeaker will be very dependent on the almost as strong to either side of it amplifier it is used with. (fig.3). There were also some low-level modes in the upper bass. I could just While there are discontinuities in the impedance traces that would imply hear these modes with the noiselike MLSSA signal and my ear close to the the presence of resonances of various kinds, with a horn speaker these might panel. They might not be significant also be due to the effect of reflections with music, therefore, other than perhaps adding some midrange congesfrom the horn's mouth. The only part of the two enclosures where panel tion with some kinds of music. **CONTINUED ON PAGE 65** resonances might give rise to audible problems is the front of the woofer 2 See stereophile.com/content/air-tight-atm-300r-power-amplifier-measurements. bin. When I investigated this panel's

Frequency in Hz

Fig.4 Klipsch Klipschorn, acoustic crossover on tweeter axis at 50", corrected for microphone response, with the nearfield woofer response (red)

plotted below 675Hz

the day they arrived, I was the only one at home, and none

of my able-bodied neighbors were available to help. With

rain a possibility and nightfall a certainty, I didn't have the

ing 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

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

It took about an hour and a half to get the four separate

reasonably well. I put felt sliders under the assembled speak-

closer they were to the corners of my room, the better these

new Klipschorns sounded. This observation is corroborated

cabinets unpacked and in the door, after which things went

ers as an aid in positioning them and soon found that the

listening room are at least 29" wide. Trust me on this.

luxury of waiting for assistance, so I worked alone, counter-

unwieldy cardboard cartons in which the bass cabinets were

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 toed in or toed out to obtain the best imaging. The corner still 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 room's four walls are exterior walls, and a third—the

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wall that adjoins what was once the house's brick back

sound of his acoustic guitar had more body than it had

earlier 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

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 tonally skewed in a

hollow sort of way and simply did not hold my attention.

During the next couple of weeks, I found much to

fine-tuning of toe-in. I was partly right.

And deep bass was still AWOL. This, too, I attributed to the

need for additional running-in—that and the need for some

heard from the Klipsches, tactile and immediate. Yet, by the

Shindo Haut-Brion, whose output transformers have 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 (\$16,995), which uses a single 300B KLIPSCH HERITAGE SERIES KLIPSCHORN

deus Quartet (LP, Deutsche Grammophon 138 897)-and was very satisfied. Here, too, the lower notes had the heft measurements, continued **CONTINUED FROM PAGE 61** The Klipschorn's impedance

magnitude plot has a single peak in the bass centered on 36Hz, suggesting

that this is the drive-unit's fundamen-

tal tuning frequency. The red trace in

fig.4 was taken with the microphone close to one of the low-frequency

horn openings; it indicates that the

the tuning frequency. There are also

output at 103Hz and 190Hz, which I

could hear with the MLSSA signal as a

I plotted the output of the woofer in

Frequency in Hz

Fig.5 Klipsch Klipschorn, anechoic response on tweeter axis at 50", averaged across 30° horizontal

window and corrected for microphone response

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fig.4 at a level where it crossed over to

significant peaks in the woofer's

"hooty" quality.

woofer's output rolls off sharply below

generally forward-sounding Altec Valencias-another old design, long gone from the marketplace. The Klipsches did not skimp on string texture, and I noted that an iota more would have been too much—but the sound was pleasantly convincing, and the flow with which the Klipsches played some of Beethoven's best melodies was a joy. Incidentally, while listening to that and other recordings, I tried increasing the Klipsches' toe-in to a point where their axes crossed in front of my listening seat-after all, it seems to me that that's how many pre-AK6 installations would have been heard, given the inability to lessen the drastic angle forced on the listener by strict corner placement-but disliked it in every way: The results were spatially confused and tonally bright, and the speakers sounded gritty on passages that sounded perfectly smooth when the cabinets were toed-in only gently. No, no, and no. Finally, during what turned out to be my last week with the Klipschorn AK6s, I tried driving them with the least expensive power amp I have in-house: the Luxman MQ-88uC (\$5995), a permanent addition to the Luxman line that's virtually identical to the limited-edition MQ-88uSE that I wrote about in the September 2017 Stereophile.3 The MQ-88uC uses push-pull pairs of KT88 pentode tubes, operated

with some global feedback, to deliver 25Wpc in class-AB

mode. More than the other two amps I tried, the Luxman made the Klipsch's bass range come alive, especially when

Just prior to trying the Luxman amp on the Klipschorn AK6s, I reinstalled the Shindo Haut-Brion amp, put on

enjoyed from its 8-ohm outputs.

measurements, continued

filling in to the speaker's sides, overall

the midrange and treble than a con-

ventional, direct-radiator design. This

graph also suggests that in free space

the woofer horn offers a higher output

gestion is incorrect. What is happening

woofer's output (see later) is reduced

more of it is captured in the gated time

to the speaker's sides, meaning that

window. In the vertical plane (fig.7),

the on-axis response is maintained

over a wide $\pm 10^{\circ}$ window. This is a

closer to 45" from the floor.

good thing as the tweeter is 51" from the floor and the average listener's ears are 36" high. I do note, however, that AD's listening chair places his ears

In the time domain, as with the Auditorium 23 horn-loaded loudspeaker, the Klipschorn's step response (fig.8) is complicated. The problem with a loudspeaker using horn-loaded drive-

units but with the horn openings in the same plane is that the outputs of the

drive-units arrive at the microphone or the listener's ears at different times,

to the speaker's sides than it does on

the tweeter axis. However, that sug-

is that the time delay affecting the

the speaker is more directional through

66 Philharmonic, Kirsten Flagstad, et al, of Wagner's Das Rheingold (3 LPs, London OSA 1309). It was a Saturday morning, and the Klipschorn's generally excellent way with this music-no speaker in my home has better put across the color, texture, and tension in the sound of the cellos and double basses under Solti-compelled me to once again listen to the whole thing through. With the Luxman amp, there was sufficient bass power to make the giants sound menacing, from the first act to the last: The bass drum that signals the death of Fasolt (sorry if that's a spoiler) had excellent impact and very good depth, albeit a bit of overhang, and for whatever reason, the sounds of the performers' footsteps on the stage were much more prominent than through other speakers. Interestingly, I found it possible to listen to this recording on the AK6s from way off axis and still fully enjoy its many spatial thrills. A great experience all around. Conclusions At my old house in Cherry Valley, small birds made their nests in the quince trees outside my window. I know because I cut down five of the trees before the snow came, to

uncannily convincing from just outside the room where the admire in the performance of the Klipschorns, which reproduced vocals with exceptional clarity and lack of system is playing (something I associate with old Quad ESLs in particular)-yet when I stepped into the next room, I excoloration, and whose stereo imaging and soundstaging perienced the opposite effect: I could hear the instruments, but it took a couple of seconds for me to tell what piece of capabilities were shockingly good for such wide loudspeakers. Still, in light of the lack of bass, I wondered if the music was playing. (It turned out to be "All the Things You Are.") I chalked it up to the need for additional running-in, The next morning I resumed listening: I spent several

> response, averaged across a 30° horithe farfield response of the midrange zontal window centered on the tweeter unit (blue trace) at the specified axis. Again, the tweeter appears to be 450Hz. The woofer rolls off rapidly too high in level. Some sharply defined above that frequency, but this graph suckouts are visible between 2.5kHz does suggest that the woofer's level is somewhat lower than the midrange's. and 4.5kHz. The farfield responses in figs.3 and 4 were taken with the grille The midrange unit crosses over to the tweeter (green trace) a little lower in in front of the midrange and treble horn openings, as that is how Art Dudley frequency than the specified 4.5kHz; performed his auditioning. Removing while the rolloff is fast, a couple of the grille and repeating the farfield resonant modes are visible. Driven by measurement suggested that these the Krell amplifier, the tweeter appears to be balanced on average 3dB too suckouts filled in to some extent. Note high in level, with a 6dB-higher peak that I haven't plotted the response bebetween 8kHz and 11kHz and a sharp low 350Hz in fig.5, as the horn-loaded woofer's output in free space wasn't rolloff above 18.5kHz. fully captured within the gated time Fig.5 shows the Klipschorn's farfield window. (For this kind of measurement, the FFT is applied to the portion of the impulse response before the first reflection of the sound, which in this case will be from the ground in front of the loudspeaker.3) The plot of the Klipschorn's horizontal dispersion (fig.6), normalized to the

that was missing when driving the AK6s with my Shindo.

tial relationships between the players sounded perfect; the

sound overall was somewhat more distant than that of my

Although the images of the four players were notably large, I didn't think they were too large-and in every way, the spa-

September 2019 stereophile.com KLIPSCH HERITAGE SERIES KLIPSCHORN technology has progressed in many ways. Speakers that sound timbrally neutral and uncolored are much more common today, as are speakers with consistent and effective dispersion across their operating range. Thanks to the pioneering work of people like Jon Dahlquist, Jim Thiel, Richard Vandersteen, and John Fuselier, physical time alignment of drivers in a dynamic loudspeaker system is virtually a given these days, and the problem of baffle edge diffraction has been identified and smacked upside the head. The result is a great selection of loudspeakers that offer apparently flat frequency response, superb stereo imaging, and great airiness and transparency. And what did we give up to gain such easy access to all those things? Natural-sounding dynamics. Impact. Pluck.

Snap. Body—especially body. And soul. This review was motivated as much by personal interest

27.67 dB, 9677 Hz 8.888 mass Fig.11 Klipsch Klipschorn, tweeter only, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms

AK6's bulk-each weighs nominal impedance as "8 ohms 220lb-I drove my test gear compatible." This is optimistic: Not the 177 miles to Art's place only does the speaker's impedance and measured the speaker sitting magnitude (fig.1, solid trace) drop to on a furniture dolly in his driveway. I 3 ohms in the midbass and 2.7 ohms used DRA Labs' MLSSA system and a in the upper bass, but the electrical phase angle (dotted trace) is somecalibrated DPA 4006 microphone to measure the Klipschorn's behavior in times extreme. There are currentthe farfield and an Earthworks QTC-40 demanding combinations of 4.1 ohms mike for the nearfield responses. and -43° phase angle at 44Hz and 4.1 ohms and +43° phase angle at 139Hz. Despite its very high sensitivity, the Klipsch specifies the Klipschorn's sensitivity as 105dB/2.83V/m, which is

extraordinarily high. My estimate was

lower, at 101.1dB(B)/2.83V/m, but this

is still the second-highest sensitivity of

ecause of the Klipschorn

MEASUREMENTS

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 suggesting that the sound of 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 16.5" wide by 5.5" high mouth. Installed just above that horn is a far smaller horn—its mouth is 4.25" by 1.75"-molded from fiberglass-impregnated ABS plastic in plifier that Art Dudley used for much of his auditioning. The difference between the two responses, which were normalized at 1kHz, is shown in fig.2. I don't

know what the Shindo's output imped-

ance is, but it must be high, as this

amplifier tilts down the Klipschorn's

response above 2kHz, with the differ-

ence between the response with the

performance on the Shindo's part.

However, when I asked Art to let me listen to music with the Klipschorns using first the Air Tight ATM-300 amplifier that he reviewed in February 2019, which has a low output impedance of 1.2 ohms from its 8 ohm output transformer tap,2 then the Shindo Haut-Brion, the latter gave the best sound. Yes, the balance with the Shindo lacked top-octave air, but the high

between 11kHz and 13kHz.

Shindo and the Krell reaching -10.7dB

This might seem less-than-optimal

frequencies were exaggerated with the

And what a bass cabinet it is! For the most part, the

wall-is effectively an exterior wall, making this an extremely hours running-in the speakers with my CD player on repeat, sturdy, stiff-walled room. The room measures 17' long by 12' 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. I began with the backs of the Klipschorn AK6s a short Guitarist David Grier's Ways of the World (CD, Dreadnought distance from the front wall—their front surfaces, measured Recordings 1801) was more musically convincing than I'd expected given the previous evening's listening, and the at the centers of the cabinets, were a little more than 3' from

response on the tweeter axis, is complex. Disregarding the off-axis peaks, Fig.6 Klipsch Klipschorn, lateral response family at which will be due to on-axis suckouts 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off 3 See the diagram at 14:40 in my lecture on loudspeaker measurements: youtube.com/watch?v=j77VKw9Kx6U. axis, reference response, differences in response 5–90° off axis.

Roxy Music's Avalon (SACD/CD, Virgin 7243 5 83871 2

4), and listened, disappointed at the bassless sound. Then I

swapped in the Luxman MQ-88uC, let it warm up for 15

minutes, played the track "Take a Chance with Me," and

ing them, the Klipschorns played notes that were literally

inaudible with the Shindo, and that were not delivered in full measure with the Air Tight ATM-300R. The music had sonic snap and presence and near-hypnotic musical

style-and now the kickdrum, floor tom, and electric bass

Joanna Newsom's beautiful "You Will Not Take My

especially well-served by this combination. Her voice, like

the violins in the Beethoven quartet described above, was

generously but not excessively textured, its uniquenesses preserved but not exaggerated. There was good momentum

in the chording from the electric piano, although I noticed

of overhang. And in the progression of different keyboard

in which some notes were completely inaudible, perhaps owing to cancellations of upper bass/lower midrange tones.

3 See stereophile.com/content/listening-189-luxman-mq-88use.

that some notes in that instrument's lowest register had a bit

sounds that repeat the song's closing cadence, there was one

I also turned to the recording by Georg Solti, the Vienna

But from my own experience with truly

time-coincident, multiway loudspeak-

where the outputs of all the drive-units

arrive simultaneously at the ear, I feel

The difference in arrival times of

such time delays smear and obscure

stereo imaging precision.

ers like Quads and Vandersteens,

Heart Alive," from Divers (LP, Drag City DC561), was

controlled note decays.

due to the different lengths of the

the tweeter's output—the upward-

moving spike at 4ms in fig.8—arrives

first at the microphone. The output of

the midrange unit doesn't arrive at the

microphone for another 1.5ms, while

5-15° below axis.

horns. While all three drive-units are

connected in positive acoustic polarity,

flow-with this album, guitarists Neil Hubbard and the great Phil Manzanera had perfected their tight, spare tag-team

had real depth and power, if not quite the last word in tightly

was stunned at the difference. With the Luxman driv-

the woofer's output is too late to be the tweeter's output and that of the shown in this graph. (Separate meamidrange unit can also be seen in the surements of each drive-unit indicate Klipsch's cumulative spectral-decay that the woofer's output arrives 6ms or waterfall plot (fig.9). This graph is after the midrange unit's.) Does this difficult to interpret, but the different matter? In theory, even the woofer's arrival times make it possible to caloutput is within the hearing system's culate individual cumulative spectral tolerance for different arrival times.4 decay plots. Fig.10, therefore, shows Data in Volts

Research's first loudspeaker, with its relatively small sealed enclosure and "acoustic suspension" woofer, made in the mid-1950s. "My measurements showed that my little prototype had better bass and less distortion than anything on the market, yet it was one quarter the size," wrote AR's founder,

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cumulative spectral-decay plot on tweeter axis at

Fig.7 Klipsch Klipschorn, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 10-5° above axis, reference response, differences in response **Fig.8** Klipsch Klipschorn, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

> sponses, would sound like.—John Atkinson 4 See wikipedia.org/wiki/Precedence_effect.

Edgar Villchur, adding "I thought, 'This has got to be the future of loudspeakers. $^{\prime\prime\prime5}$ It was. Multiway loudspeakers with hornloaded drivers but a flat baffle can be made time-coincident with digital signal processing. As the Klipschorn has separate input terminals for each of its three drive-units, I can't help wondering what a fully DSP-corrected, tri-amplified version of this loudspeaker, with the high sensitivity coupled with optimized step and frequency re-

as my desire for a paycheck: I turned to the Klipschorn to

found dynamics in various contemporary horns, such as the

Auditorium 23 Cinemas and Volti Vittoras, and even more

Altec 755 full-range driver. I've found enjoyable combina-

The 2019 Klipschorn also offers its own combination

of those qualities, one that delights and surprises in some

tions of all those qualities-compromises, to be sure, but good, smart ones-in the DeVore O/93s and O/96s.

so in any number of vintage horn-loaded speakers, including my own Altec Flamencos. I've found soul in Quad ESLs and LS3/5a's and various incarnations of the Western Electric

see if I could find those qualities in a true classic speaker

that I've never before had the chance to live with. I've

the midrange unit's waterfall plot. It is dependent on the amplifier with which fairly clean, though with several spikes it is driven. I don't recommend using of low-level delayed energy visible a typical solid-state design with the above the crossover frequency to the Klipschorn because the region covered by the tweeter will be too hot. tweeter. The tweeter's waterfall plot (fig.11) reveals a clean initial delayed I wasn't too surprised by the Klipschorn's limited low-frequency energy, but again there are some ridges of delayed energy at the top of extension despite its size. I was its passband. reminded of the impact Acoustic The Klipschorn's measured behavior reveals that the performance parameters that are generally held in the 21st century to correlate with good sound quality in both the time and frequency domains have been compromised to achieve that astonishingly high sensitivity. Its sound will also be heavily

It seems I can't make a change for the better without also changing something for the worse: Every gain entails a concomitant loss. Not to be too Zen about it. In the years since the Klipschorn's debut, loudspeaker

clear the way for a new chimney, but I didn't see the nests until it was too late. I felt miserable and changed my plans

as much as I could in order to save two other trees—each of which, I saw after the fall, contained a nest of its own.

Fig.9 Klipsch Klipschorn, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

Fig.10 Klipsch Klipschorn, midrange unit only, 50" (0.15ms risetime). stereophile.com . September 2019 KLIPSCH HERITAGE SERIES KLIPSCHORN respects (uncolored vocals, surprisingly good spatial performance, much better senses of touch and impact than

the average loudspeaker) while disappointing in others (less than the tightest bottom octaves, a trace of grain under strain). Listeners with a taste for vintage-style impact and immediacy who also enjoy good stereo imaging and soundstage depth will quite likely love the AK6. Those who are looking for the ungodly-real midrange of a horn-loaded Western Electric 555 compression driver or the snappy way that kickdrums sound through an Altec Valencia or other speaker with that company's 416-Z woofer must look elsewhere—although the latter group should be advised that the Klipsch also comes without the upper-midrange glare of

the Altec 811 horn: more tradeoffs. And my time with the Klipsches was a sobering remind-

to think that very sensitive speakers in general, and horns in particular, will sound great with virtually any low-power

that satisfied many of my long-standing longings and a

I found in the Klipschorn AK6 an imperfect loudspeaker

couple I didn't know I had-for amazing sound way off-axis, and for big, beautiful pieces of old-school audio art in my

tube amp-but it just ain't so.

er: Amplifiers and loudspeakers-especially low-power amplifiers and ostensibly easy-to-drive speakers—require careful matching. If the output characteristics of the former don't suit the impedance characteristics of the latter, it doesn't matter if both components offer Class A performance under

optimal conditions: The sound won't get off the ground. (I shudder to think how many great products have been

EMIA Phono step-up transformers, Shindo Laboratory Monbrison (2017) preamplifier. ower Amplifiers Air Tight ATM-300R, Luxman MQ-88uC, Shindo Laboratory Haut-Brion. Loudspeakers Altec Flamenco, DeVore Fidelity Orangutan Cables Digital: AudioQuest Carbon (USB). Interconnect: Audio Note AN-Vx, Luna Red, Shindo Laboratory. Speaker: Auditorium 23, Luna Red. AC: manufacturers' stock cords. Accessories Box Furniture Company D3S rack (source & amplification components), Audiodesksysteme Gläss Vinyl poorly reviewed by gurus who condemned them merely Cleaner Pro.—Art Dudley for not performing well with their references.) It's tempting

Analog Sources Garrard 301 turntable; EMT 997 and Thales Simplicity II tonearms; Ortofon SPU Century, Shindo SPU, and EMT TSD 15 pickup heads; EMT TSD 15 SPH cartridge. Mytek Liberty D/A processor. camplification Auditorium 23 Hommage T1 & T2 and

5 See villchurblog.com/inventing-the-speaker/ and stereophile.com/interviews/105villchur/index.html.

ning Roon v.1.5, Hegel Music Systems Mohican CD player,

Digital Sources Apple MacBook Air laptop computer run-

listening room. The AK6 also seems to offer exceptional value: for the technology, woodworking, and sheer size it offers, \$14,998 for a pair of these is a steal. No one with a taste

for realistic playback, and especially no one with a taste for low-power amps and high-sensitivity speakers, should miss a

chance to hear these.