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Audio Acoustics Fundamental K2 Loudspeakers

If you're a mountaineer or a geographer, you know that K2 is the name of the second-highest mountain on the planet. If you're a well-informed audiophile, you may also know that K2 refers to a high-end loudspeaker made in Great Britain -- and that the loudspeaker is not nearly as famous as the mountain.

That's too bad -- the Fundamental K2 loudspeaker (\$22,500/pair USD) deserves to be much better known. But Audio Acoustics, the company that builds it, isn't easy to find on the audiophile map. Furthermore, the K2 is only the fourth-highest loudspeaker from AA, exceeded by the Sapphire Ti-C, the [Sapphire Ti-C SE](#), and the Orb Weaver Diamond -- which retails for an otherworldly \$750,000/pair and will be launched at the 2010 Consumer Electronics Show.

The Fundamental K2 deserves to be better known because it's the entry point to a loudspeaker technology that's unique and interesting. It's also an intriguing product of the personal vision, passion, and commitment of Audio Acoustics' founder, owner, and designer, Shabir Bhatti. But mostly, the Fundamental K2 deserves to be known because it is a very, very fine loudspeaker.

Start with a blank sheet of paper

I have a lot of respect for someone who can manifest his or her passion in the real world. In Shabir Bhatti's case, decades of commitment to quality audio reproduction have resulted in his utterly no-compromise approach to the design of Audio Acoustics loudspeakers. His objective was simple: to create a speaker that added as little of itself to the sound as possible, without "interpreting" the music it was reproducing.

"I started with a blank sheet of paper in designing my speakers," said Bhatti. "The first thing in maintaining integrity of the signal was to address the problem of sound energy being stored and released by the mass of the speaker cabinet." He believes that as much as 85% of what we hear from an ordinary speaker is the resonance of its cabinet, and that a truly "quiet" cabinet is harder to engineer than a world-class drive-unit. The problem is not trivial: a resonating speaker cabinet obscures low-level detail and distorts the sound coming directly from the drivers. Bhatti's solution was to develop a proprietary acoustic membrane comprising layers of different materials, such as refined viscoelastic polymers, that would change the sound energy inside the cabinet into heat and allow the cabinet to remain inert.

"The Fundamental K2 has a basic cabinet structure that addresses the problem of resonance," he told me. "The more advanced designs, like the Sapphire Ti-C SE, do an even better job of it. But the Fundamental establishes the basic principles and uses four layers of a double-membrane composite material to deal with most cabinet resonances." Bhatti also uses the membrane materials and polymers to completely decouple the high-frequency driver from the cabinet. "The result of all these processes is a much more coherent presentation of the sound," he said.

The drivers themselves were developed to keep their breakup frequencies well outside the bandwidth they perform in. This was intended to eliminate the harshness that sometimes invades the performance of drivers that break up too close to their crossover point, or even within their operating range. To achieve this goal, the membrane material of the two 8" bass/midrange cones in each Fundamental K2 has a W-sandwich structure. Building further on this principle, the Fundamental K2's tweeter has a sapphire diaphragm, which combines the advantages of stiffness and low mass.

Bhatti claims that he also addressed a variety of other technical concerns in this design. Edge diffraction, a significant factor in distorting the midrange and higher frequencies, was minimized by the design of the cabinet in the areas near the drivers. Eliminating any parallel walls inside the cabinet minimizes the production of internal standing waves that arbitrarily reinforce certain frequencies. The drivers were positioned in the cabinet to align their outputs in time. The front port is designed for optimum airflow. Crossovers use near-zero-tolerance silver capacitors and custom-wound air-core inductors. Internal wiring is accomplished with 99.99999%-pure silver litz wire for the high-frequency driver and high-quality multistranded copper for the bass/midrange, and the speaker connects to the power amplifier(s) via WBT Platinum Signature terminals. Even the three cone footers are custom-designed of hardened VX steel to securely couple the speakers to the floor.

Build quality and finish, too, were clearly priorities. The deep-gloss Titanium Metallic finish of the review pair had a depth that spoke of



multiple layers of obsessively applied lacquer. I wasn't surprised to discover that 16 coats of gel-suspension lacquer were laid on, or that the finishing process alone takes 14 days. The Fundamental K2 is not only a remarkable engineering feat, it's a visual knockout.

Setup and system

The Fundamental K2 is a hefty loudspeaker weighing 132 pounds. It's about 50" high, 11.5" wide, and 15.5" deep. The spec sheet indicates its sensitivity at 91.5dB, and notes that the speaker is well suited to amps of 12Wpc output or more. The frequency response is claimed to be 20Hz-43kHz, +/-3dB. As this implied that the K2 would go noticeably lower than any speaker I've had in house, I made a note to listen carefully for the depth of its bass response.

Positioning the Fundamental K2s was fairly easy. The final positions were a bit closer to the front wall than my reference speakers, Triangle Stratos Australes, which gave slightly better bass reinforcement. I also tried the K2s with and without AA's supplied Nano Puck footers (\$2400/six). The Pucks lack the superb fit and finish of the loudspeaker itself, but do incorporate Bhatti's resonance-absorbing membranes, and resulted in a cleaner, more open sound. I kept them under the K2s for the duration of my listening. Bhatti recommended that I listen with the speaker grilles off, and sure enough, doing so resulted in a noticeably cleaner sound. However, the grilles are firmly attached, and two of their fragile wooden frames broke when I removed them, despite my attempts to be as careful as possible. Not a good design for households in which the grilles will be frequently removed and replaced.

Bhatti supplied me with his own silver speaker cables and interconnects, claiming that the Fundamental K2 would not reveal *all* of its virtues without the appropriate cables. For similar reasons, he also encouraged me to use the very best amplification available, and was initially somewhat doubtful about whether my reference Conrad-Johnson Premier 350 amplifier would allow me to hear what his speakers could do. Although I briefly tested the K2s with his cables, and took advantage of a serendipitous offer from an audiophile friend to listen to them with some truly exceptional amplification (David Berning Quadrature Z monoblocks, \$30,000/pair), Bhatti's request presented me with a dilemma. Yes, nearly all high-quality audio equipment performs better when the associated gear is of equal or better quality, since it can then come closer to the limits of its performance. But the problem then becomes: What are you listening to? I wasn't familiar enough with the sound of my reference speakers in a briefly upgraded (and not quite settled in) system to make the upgraded system the main basis of the comparisons. So to be reasonably sure that I was hearing the Fundamental K2 speakers and not Bhatti's cables, or the combined effects of both, I did most of the listening with my own amp and wires.

The other gear used in this review included a Rega P3-24 turntable with Clearaudio Maestro Wood cartridge and Lehmann Audio Black Cube phono preamp, an Esoteric X-03SE SACD/CD player, a Bent Audio NOH passive transformer line stage, a Classé Audio CP-700 preamp, the Conrad-Johnson Premier 350 amp, and, for a few wonderful days, the David Berning Quadrature Z monoblocks. Also in play were Triangle Stratos Australe speakers (\$5699/pair), Legenbug Apollo speaker cables and Hermes interconnects, ESP Essence Reference AC cables, a PS Audio Power Plant Premier power regenerator, and Stillpoints isolation devices.

The Fundamental K2s were already well broken in. Nonetheless, I let the system settle in for several days before doing any careful listening.

Listening

One of the things I've become interested in is identifying the people who listen to an audio product as it's being developed. "I do almost all the listening," said Bhatti. "I often attend live concerts of classical music, and my goal is to reproduce the sound of live acoustic instruments. My daughter is a musician and gives me feedback, and so do a few of my friends."

With almost all the listening decisions in the hands and ears of the owner-designer of Audio Acoustics, I expected to hear a unique and individual sound, and indeed I did. The Fundamental K2 offered one of the cleanest presentations I've heard from a loudspeaker, with easily heard detail and a relaxed separation of instruments. There was a calmness and coherence to the sound that spoke of a lack of distortion, and of Bhatti's success at having achieved his design goal of adding as little as possible to the sound.

For instance, in the high-definition excerpt of Pepe Romero's performance of "Zapateado," on FIM's *This Is K2 HD Sound!* sampler (CD, FIM K2 HD 078), the flamenco guitar sounded rich and clean, and the dancer's percussive, hard-leather heels on the resonant wooden floor were extraordinarily realistic. Furthermore, the room sounds gave a plausible sense of the size of the room, as well as of the dancer's movements across the stage. Similarly, the three footsteps near the beginning of "Blush Response," in Vangelis's soundtrack for *Blade Runner* (CD, Atlantic 82623-2), were obvious to a degree I'd never heard before. The extraordinarily clean sound spoke well of the Fundamental K2's exceptional control of distortion and noise across the audioband.

There was a matter-of-factness about the upper frequencies that was very satisfying without overstating the case. The sense of HF extension was not as great as with some other speakers I've reviewed, notably the Reference 3A Grand Veena, but the lack of distortion in the highs made the Fundamental K2 persuasive and easy to listen to.

Bass performance was clean but not overwhelming -- which is to say, pretty much right on the mark. Unlike my experience with my reference speakers, which are down 3dB at 35Hz, the opening bass drum in Erin McKeown's cover of "Paper Moon," on *Sing You Sinners* (CD, Nettwerk 30564), didn't seem constrained at the bottom end, and was as clear and undistorted as I'd ever heard it. Yet it didn't seem quite as loud and impactful in the mix as I'd heard with other speakers, even taking into account the lack of the distortion that can make bass sound louder. Briefly adding an REL Strata II subwoofer to the system provided lower frequencies and power that hadn't been there before, and that suited rock and bass-heavy music with loud percussion. But for my taste, the level of resolution was preferable with the unadulterated bass of the Fundamental K2s standing alone. For instance, in the opening bars of "Bye-Bye Blackbird," from Patricia Barber's *Nightclub* (CD, Premonition/Blue Note 27290), when the double-bass and piano play bass notes in unison, it was easier than ever before to distinctly hear two separate instruments.

Male and female voices were wonderfully expressive through the Fundamental K2s. I enjoyed the you-are-there levels of detail and texture of Jennifer Warnes's voice in the *20th Anniversary Edition* of her *Famous Blue Raincoat* (CD, Shout Factory 10490), particularly



the title track. Hugh Masekela's "District 6," from *Revival* (CD, Chissa HUCD 3093), has strong female vocals and a men's chorus, and the voices were as detailed and as easy to distinguish from each other as I've heard. I could easily imagine live musicians sitting at the other end of the chain of electronics. Jazz and blues were easy to like with these loudspeakers, particularly recordings of small groups.

Bhatti had warned me that the Fundamental K2's sound is slightly colored compared to those of his other models. That may well be the case, but if so, it was a very small degree of coloration in any absolute sense, and was mainly apparent when I listened to classical music. With unamplified acoustic instruments, the sound had slightly more of a "hi-fi" presence than I usually prefer. How bothersome this will be is well within the range of individual taste. Even as twitchy as I am about such things, I found it of minimal importance after listening for a few days. Instrumental music remained very detailed and clean, and clearly superior to my reference speakers. The Fundamental K2 also easily passed my torture test in comfortably conveying six hard-to-resolve musical phrases in the middle movement of Maxim Vengerov's performance of Tchaikovsky's Violin Concerto, with Claudio Abbado leading the Berlin Philharmonic (CD, Teldec 90881), where several instruments play in unison.

The same virtues were evident, though to a greater degree, when I added the David Berning Quadrature Z monoblocks and Bhatti's own silver interconnects and speaker cables. For example, with the Quadrature Zs, the texture of Vengerov's bowed violin in the Tchaikovsky was a delight, and the sense of the guitar's presence and the realism of the dancer's boots against the wooden floor was even greater in Pepe Romero's "Zapateado." The silver speaker and interconnect cables also opened up the sound more than my Legenburg OCC copper cables did. But with the silver cables, I found the timbres of acoustic instruments to be not quite as realistic, perhaps because I hadn't given the AA wires several weeks to settle in. But everything else I listened to, from world music to jazz to pop, was wonderfully revealed and easy to get into.

Considerations and conclusion

The Audio Acoustics Fundamental K2 is a clean-sounding, beautiful, and impressive loudspeaker. The sound it conveys is detailed yet relaxed, full without being excessive. It is among the select few loudspeakers that can reveal the sonic virtues of the highest-quality components -- and the highest-quality recordings. Although matching appropriate gear to a pair of them will be important in order to achieve their maximum performance, they can also play a role in an evolving audio system, helping you hear the qualities of your other components more clearly.

When reviewing the Audio Acoustics Sapphire Ti-C SE (\$128,000/pair), *Ultra Audio's* Jeff Fritz noted that "the Ti-C SE is almost solely about the finer points of musical expression." So, too, the Fundamental K2s. They won't re-create the domination of a symphony in full voice or a rock band in full scream. What they will do is convincingly and passionately re-create the inner world of music as a coherent statement of the musicians' intentions and performance.

The Fundamental K2 is a refined loudspeaker capable of great resolution and expression. It is among the highest peaks in the range, and the view from the top is worth the climb.

. . . *Albert Bellg*
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Audio Acoustics Fundamental K2 Loudspeakers

Price: \$22,500 USD per pair.

Warranty: One year parts and labor.

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Audio Acoustics responds:

I would like to take this opportunity to thank Albert Bellg and Jeff Fritz for their time input and, above all, integrity. As a manufacturer it is a pleasure to be able to communicate and deal with people who are committed to getting a factual understanding, and for this I am grateful. I enjoyed our conversations and it is a pleasure to see the K2 achieve recognition as a true "Fundamental"; offering the music lover a tool to get him nearer his live musical experience. The Fundamental K2 is capable of showing the finest minuscule changes with a massive performance envelope and improvements offering the end user not only a complete finite investment but one that can accommodate budget through to high-end ancillary upgrades and years of enjoyment.

One technical note: The grille fixing grommet and hole can be lubricated if one must repeatedly remove/refit them.

Kind regards,

Shabir Bhatti