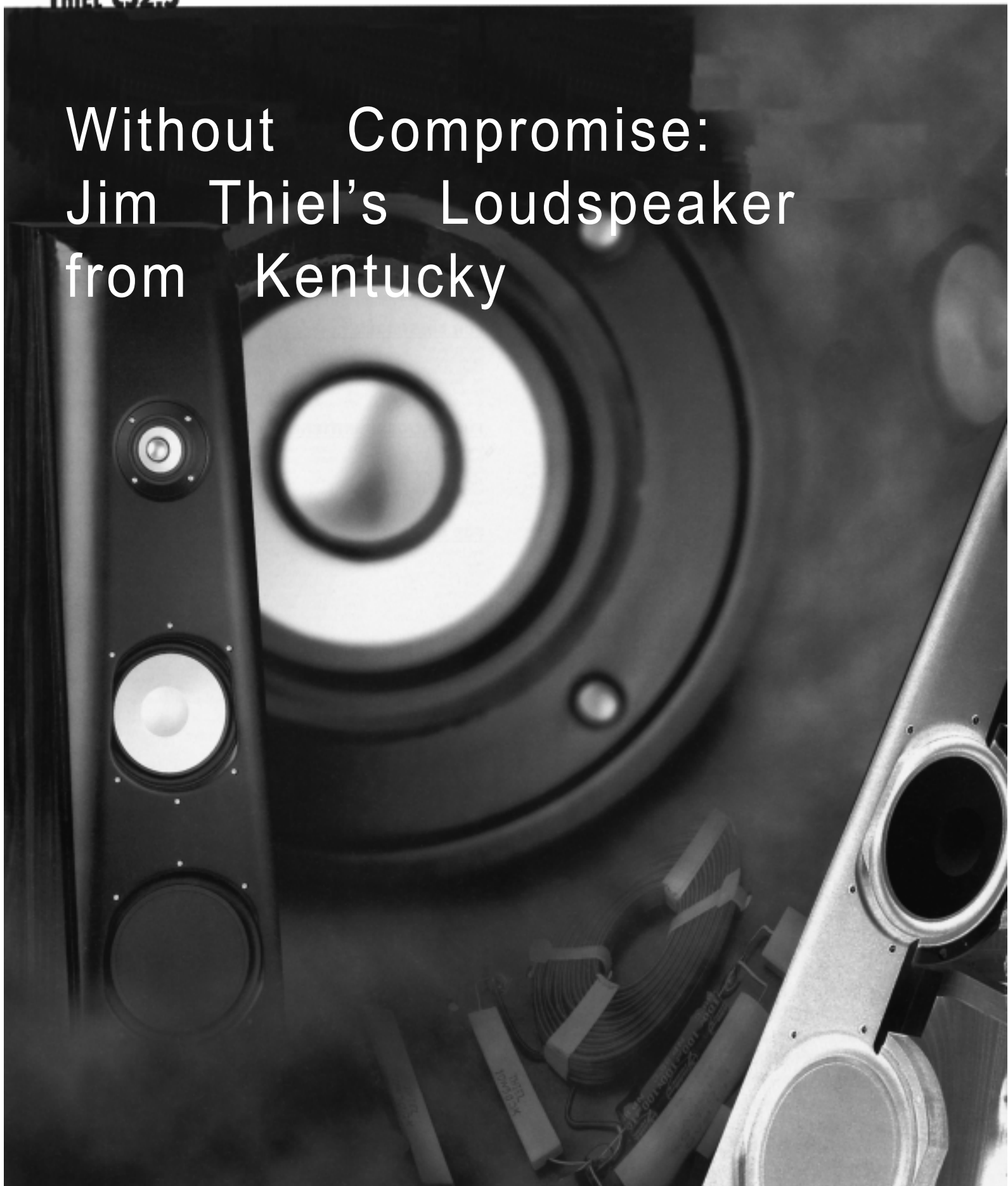


THIEL CS2.3

Without Compromise: Jim Thiel's Loudspeaker from Kentucky



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For more than 20 years Jim Thiel has been passionately building speakers in the scenic U.S. state of Kentucky. Like no other, the enthusiastic developer pays considerable attention to every minute detail of speaker construction in order to perfect his products.

From the broad line of Thiel models, which range from the compact shelf-sized SCS2 to the huge floor-standing CS7.2, we ordered the “medium” 3-way floor-standing model CS2.3 from Thiel’s German agent, Sun Audio in Munich, for testing. After carefully unpacking the CS2.3 from their well-made packing cartons, this “American” received astounded looks, as the CS2.3’s front baffle, which is about 1 meter high, is slightly sloped backwards (like almost all other Thiel models).

Sloped Shape

Jim Thiel did not select this unique looking form of construction for visual reasons, but based purely on acoustical principles. After all, it is of significant importance that the acoustic centers of woofer, midrange driver, and tweeter reach the listener’s ears simultaneously. Since the tweeter is a few inches closer to the listener than the woofer with the conventional “straight” front baffles, Jim Thiel angles his speakers rearward. This is the only way the acoustical centers of tweeters and woofers are positioned along one axis and therefore, whose output reaches the listener simultaneously.

Innovations

Unfortunately a linear time and phase response at all frequencies is voided with “conventional” crossover networks, which is why

Jim Thiel uses first-order 6dB/octave crossovers in all his models. Only these type of crossovers produce an output of the treble and bass frequencies which is phase-correct and accurate as far as the input signal is concerned.



An extremely stiff aluminum diaphragm prevents unwanted resonances in the CS2.3 woofer’s frequency range.

Since extremely high demands are made on drivers used with first-order crossovers, which only “gently” limit the operating range of individual drivers, most manufacturers use higher-order crossovers. Jim Thiel chooses a different path and develops his own drivers (i.e. on a CS2.3, they are even manufactured by Thiel), so that they can operate accurately across a broad frequency range. The drivers used in the CS2.3 are thus true innovations as far as the technological and manufacturing background is concerned. Extremely stiff aluminum is used as the diaphragm material for

the woofers and midrange drivers to keep sound-distorting resonances to a minimum.

To keep distortions to a minimum, the CS2.3's drivers have particularly short voice coils, which are in motion in an especially long magnetic gap. Together with the copper



The unique coaxial coupling of the tweeter and midrange via a "mechanical" crossover on a Thiel CS2.3.

ring around the center pole (to reduce the voice coil's inductance), a uniform, stable magnetic field results—one condition needed for music reproduction without distortion.



This cabinet cross-section clearly shows the CS2.3's extremely thick front baffle and detailed cabinet construction.

Jim Thiel

For over 20 years Jim Thiel has been busy with the development of his speakers in Lexington, Kentucky, USA. The physicist and mathematician of German descent was able to make his hobby his job. Jim Thiel is able to dedicate himself exclusively to perfecting his products, as all marketing matters relating to his company of about 40 employees are handled by his partner, Kathy Gornik. His huge success is based on the importance he places on all speaker performance characteristics, minute engineering details, as well as a consistent application of his own, in part unprecedented, ideas. In conclusion, the use of his 6dB/octave crossovers, his unique coaxial drivers, and "slanted" cabinet construction sure sound and look good.

We recommend an extensive test with a specialized dealer. But exercise caution: Side effects such as "immediate purchase" may result!



The midrange/tweeter driver used in the CS2.3 is literally unique in this world. This unit is a coaxial driver in which the tweeter's dome is positioned centrally within the midrange's diaphragm. Nothing new here really, however both diaphragms use only one shared voice coil and are mechanically linked to each other with a coupling piece mounted between the two. Principally speaking, we are dealing with a "mechanical" crossover between the treble and midrange drivers. The coaxial layout and fewer crossover components (as would be normal with other three-way speakers) result in time and phase-correct output, as previously described.

The black flat diaphragm in the lower cabinet area is, by the way, a passive radiator. It supports the woofer in reproducing the lowest bass frequencies as is found in bass reflex designs. However, unlike bass port designs, the passive diaphragm prevents unwanted noise and a "hollow" sound that can be emitted from the cabinet's interior.

Wood Quality and Craftsmanship

The use of highly dense MDF panels as construction material for speaker cabinets, is also nothing new. However, in the case of Jim Thiel's CS2.3, the tremendously expensive,

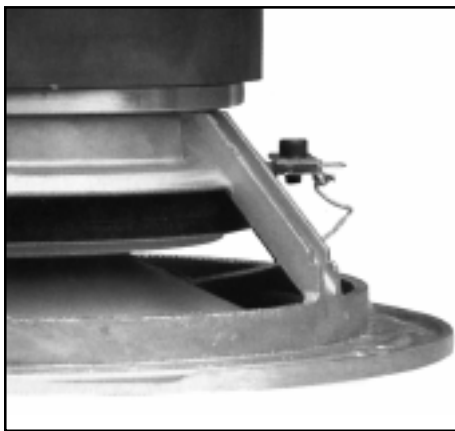
Crossover

The CS2.3's 6dB/octave crossover. Only one component is located in the signal path of each of the crossover sections. In addition, very high quality capacitors are, in part, wired in parallel (top left). Other components assist in the correction of impedance and are not located in the signal path.



rigid cabinet's precision of craftsmanship is indeed impressive. In fact, three horizontally mounted braces prevent annoying natural reflections off the inside walls and add cabinet strength, which is already increased by the slanted shape of the construction. The speaker's most important aspect as it pertains to sound is the front baffle, which is made of three 1-inch layers of MDF panels and consequently obtains incredible stability and, acoustically speaking, nearly "mute" characteristics. To prevent unwanted sound diffraction at the cabinet's edges, the baffle is generously rounded.

As is common knowledge, the eyes are "listening" as well, which is why Jim Thiel also places special emphasis on the exterior design of his speakers. The model CS2.3 is therefore available in fifteen (!) different types of genuine wood veneers—all of which represent the excellent quality of workmanship. Those hi-fi enthusiasts who are also en-



vironmentally inclined will appreciate the fact that Thiel uses only toxic-free finishes and glues, and all veneer types come exclusively from controlled cultivation where approximately 10 trees are planted for each one that is cut.

Expectation of Quality

Mr. Thiel's demand for high quality extends beyond the selection of materials, the manufacture of components, and the ultimate quality assurance of the end product. The tolerances of the drivers, which are made at Thiel, are so tight that they can be matched and used interchangeably in cabinets without

problem. Prior to delivery, each speaker additionally undergoes an extensive round of tests in a 10 meter high, acoustically damped measuring chamber.

Most importantly: The Sound

Enough about theory. What counts is solely the musical end result. We gave the CS2.3 enough warm-up time by playing it continuously for about three days and nights. As a suitable sound source, we used the grand Proceed CDP CD player with the powerful Bryston BP25/4BST Preamp/Amplifier combination in our listening room and inserted Quincy Jones' "Back on the Block". Wow! The CS2.3 has real "muscle". No cautious "pretentiousness" as one would find with some "high end dainty", but dynamic power is the CS2.3's strength. The enormously deep bass incites adoration with rigorous ease and exemplary precision. Mid-frequencies are rendered realistically and placed clearly into the listening space. Up above, the airy, free, "spick and span" clean treble range blends seamlessly and directly.

The CS2.3 is a speaker which is greatly enjoyable! Though the CS2.3 is neither a muscle-man nor "overzealous," but simply translating sound information, it provides enormous pleasure when playing music. Jim Thiel's ideas regarding the importance of phase-correct reproduction are clearly demonstrated with Cassandra Wilson's "Dance to the Drum": The artist's smoky soft voice is rendered downright live—voices and instruments resound with "soul," and is simply unostentatious and movingly "true".

Conclusion

Thiel's CS2.3 is the ideal partner for any type of music. Whether a small chamber group, large orchestra, or rock music recorded live, it is always capable of skillfully showing its capabilities with lifelike, dynamic, voluminous, precise rendition and captivates the listener each time with enviable delight when music is played.

Michael Voigt

Lab Report

With the assistance of a computer-aided measuring system called MLSSA, we can measure frequency responses anechoically, which provide information on speakers' accuracy and balance. Ideally, the frequency response should measure smoothly and without drops across a range that is as broad as possible. The Thiel CS2.3's frequency response is very linear and insures a balanced sound.

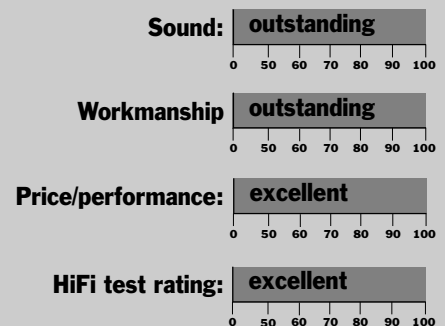
Specifications

- 3-way design
- 6.5-inch aluminum diaphragm woofer with passive radiator
- 1-inch dome tweeter in coaxial layout with 3.5-inch midrange
- Efficiency (1 W/1m): 87dB
- Impedance: 4 ohm
- Recommended amplifier power: minimum 100 watts
- Dimensions (wxhxd): 11 x 41.5 x 15
- Warranty: 10 years
- Price: DM9,000 (\$5300 U.S.)/pair

What Attracted Our Attention

- + the unique coaxial drivers
- + the 6dB/octave crossover
- + the detailed cabinet

Results



High-End