

AURICLE

ANTHONY H. CORDESMAN

THIEL CS6 SPEAKER



Company Address: 1026 Nandino Blvd., Lexington, Ky. 40511:
606/254-9427

Speakers may still be the chief source of colorations in an audio system, but today's best dynamic, ribbon, planar, and electrostatic speakers are notably more accurate than those of even a decade ago and far more musical than those I grew up with. Jim Thiel has been responsible for some of this progress; he is clearly the kind of speaker designer who just never stops improving his products. Each new generation of Thiel speakers has sounded more detailed, more coherent, and more transparent and has offered flatter response, better dynamics, and a more realistic midbass and upper bass. Each added refinement has been another step toward making the musical experience more real.

Priced at \$7,900 per pair, the CS6 is a three-way speaker that weighs 175 pounds and stands 50 inches tall—hardly petite, though its narrow (13-inch), sloping front and 18½-inch depth minimize its visual impact. Although it's not Thiel's largest or most expensive speaker, the CS6 shares those speaker's basic design features. For example, it uses first-order crossovers to minimize phase distortion, but while first-order crossovers can be very simple, the CS6's has 32 elements, 12 of which are used to correct minor frequency response irregularities. Like other Thiel speakers, the CS6 has an extremely heavy enclosure for its size; it's made from inch-thick fiberboard and has extensive internal bracing; built-in "stabilizer pins" (spikes) anchor it to the floor. Another common element is a baffle that's sloped to maintain time coherence among the drivers and rounded to reduce diffraction; as on the CS7, it is cast from concrete in order to subjugate resonances.

The major difference between the Thiel CS6 and some of its predecessors is that it uses a new version of the coaxial tweeter and midrange array that Thiel introduced in the CS7. Although the CS6's precisely calculated baffle slope al-

ready gives the speaker an unusual degree of time coherence, Thiel says the coaxial mounting of the tweeter and midrange assures perfect alignment of both drivers and reduces any arrival-time error above 2 kHz caused by differences in listener height.

The tweeter's short aluminum voice coil, long magnetic gap, and long-excursion surround enable it to deliver very high output. The midrange cone is shaped to act as a waveguide for the tweeter so that it won't reflect treble frequencies or hornload the tweeter, thus reducing the diffraction common in coaxial designs. The midrange cone is an aluminum-polyethylene-aluminum sandwich, for maximum rigidity and minimum resonance; resonance is further reduced by the driver assembly's heavy, cast-aluminum frame. Copper pole sleeves on the midrange and tweeter magnets reduce the voice-coil's inductance and stabilize the strength of the magnetic field; the magnets themselves weigh a total of 10 pounds.

Bass is provided by a 10-inch woofer and a passive radiator. Like most other Thiel drivers, the CS6's woofer has a voice coil much shorter than the magnetic gap. Combined with the use of a copper sleeve around the center pole, this keeps the magnetic field surrounding the coil stable during very long excursions. The woofer also has a rigid aluminum diaphragm to reduce resonance and a massive, 20-pound magnet. Thiel claims that this technology enables the woofer in the CS6 to move considerably more air than many other 10-inch woofers and that it extends the bass response of the CS6 down to 23 Hz while keeping distortion low.

The balance of the CS6's specifications are more modest about its bass capability. Thiel rates the speaker's bandwidth as 28 Hz to 28 kHz and its frequency response as 35 Hz to 18 kHz, ± 1.5 dB. The response at 30° off axis is also said to be extremely flat, even in the upper octaves. This outstanding off-axis response may help explain why the CS6 provides an extremely stable soundstage and excellent imaging over a relatively wide listening area, and it definitely explains why its upper-octave timbre does not change as you rise from your listening chair.

Specifications for time and stepped-pulse response are also very good (true of all Thiel speakers, including the much smaller and less expensive CS2.2 and CS3.6). The CS6's impulse-reproduction specs indicate outstanding transient response, and the company's stepped-pulse curves reveal an unusual ability to reproduce complex signals. These are key measures

of speaker performance, and it is a pity more manufacturers don't publish them.

The CS6 has the same moderate to low efficiency as other Thiels, with a rated sensitivity of 86 dB SPL for an input of 2.83 volts. Recommended amplifier power is 100 to 400 watts; I found that you can get away with really good tube amps that deliver as little as 60 to 80 watts, but this is not a speaker for 8-watt, single-ended triode amps or the kind of transistor amplifier that lacks "legs." Opt for 100 watts or more to make the CS6 really come alive.

The CS6 is, however, an easier load than Thiel's CS7 or CS5. It has a relatively smooth impedance curve that mostly stays close to its nominal 4 ohms and reaches its minimum of

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2.5 ohms only at frequencies where that's unlikely to matter. This impedance curve makes the CS6 relatively amplifier-tolerant, so it should work well with any modern high-current design.

Overall, timbre is remarkably flat and life-like. Thiel has long done an outstanding job of removing minor frequency imbalances and colorations.

The bass and deep bass are outstanding. The CS6 has flat, smooth low-frequency response, with little overhang. This may be something of a novelty if you're used to speakers that camouflage limited low-frequency response with a rise in the mid-bass. But if the recording really does have bass, the CS6 provides audible power down into the bottom octave and does so with unusual definition and control. It can provide deep bass at room-vibrating levels, without doubling. This is not a speaker that can provide the bass power of a subwoofer, but its performance should meet the expectation of any audiophile who's into music rather than bombs and train crashes.

At lower than natural volume levels, however, the CS6's lack of a bass rise will keep it from sounding as good as some more colored speakers whose humped bass helps compen-

sate for the human ear's reduced bass sensitivity at low levels. Like all flat-response speakers, the CS6s come alive only at reasonably high listening levels.

I mentioned earlier that the CS6 has more expensive siblings, the CS7 (\$8,900/pair) and the now-discontinued CS5i (\$12,300/pair). Although the CS6 does not go down quite as low as these other Thiels, its upper bass and midrange performance rivals theirs, and the CS6 seems to have a smoother and more coherent transition from the upper bass to the midrange than the CS5i did. The CS6 does a lovely job of reproducing solo instruments in this transition region, where many speakers slightly color the sound, making it too warm or lean. It does a great job with solo piano, guitar, violins, brass, and woodwinds. Both male and female voice are very natural, too.

The upper midrange and treble are similarly impressive. There is a virtually seamless transition, in terms of sound-staging information and of tone, between the upper midrange and treble in the CS6. Dynamic and transient performance are excellent. The CS6's treble is highly detailed but adds no harshness. Normal head movements won't affect the treble you hear, and the "air" provided by the top octave is matched by sweetness and natural life throughout the upper octaves. As with virtually all speakers, however, you need to sit a reasonable distance away to get the best tonal balance; the apex of an equilateral triangle at least 4 to 6 feet on a side is the minimum.

The CS6's dynamics are not as exceptional as those of some select ribbon designs, but no speaker I know that uses cone and dome drivers has better dynamics, and I know only a few whose dynamics might rival the Thiel's. The CS6 can handle full orchestral peaks without difficulty yet still convey all the low-level dynamics that make good recordings seem almost live; except at the very low levels mentioned earlier, detail and timbre do not change as volume increases or decreases. The CS6's transient detail rivals that from most electrostatic, planar, and push-pull ribbon speakers. Only a few speakers, such as Apogee Acoustic's Grand series, offer livelier and better-defined transients. (And I'm unsure whether that makes the Apogees more accurate or merely euphonic.) Further, the CS6 is one of the relatively few speakers whose bass transients are as accurate as its midrange and treble transients; the Thiel reproduces bass-drum and double-bass transients just as well as those from snare drum and guitar.

The CS6's spatial reproduction and imaging are as good as you'd expect from the rest of its performance. It does not, like many dipole and bipole speakers, correct for the frequent lack of natural space in recordings by making the soundstage larger than life. But if you spread a pair of CS6s as far apart as you can without sacrificing center fill or coherence and then bring them 6 to 12 inches closer together for safety, you can get a superb three-dimensional soundstage and stable, natural imaging from recordings that do contain such information.

On naturally miked live recordings, the Thiel's ability to place instruments and voices in space was a real pleasure. In playing chamber music LPs made in halls and rooms where I had actually heard live performances, I was impressed by how lifelike they sounded through the CS6s. These speakers can make chamber, small jazz group, solo instruments, duets, and solo voices come alive, in terms of space and definition, as the source material permits.

Obviously, no speaker is perfect, and as usual, I have a few practical caveats. First, although virtually all modern high-end speakers need time to break in, I would give the CS6 a couple of weeks. The bass is a bit light when the speaker comes out of box, and the midrange improves steadily with time. If you audition a CS6, make sure it has been broken in adequately.

Second, speaker designers disagree about what kind of response should be considered "flat" and how it should be measured. Jim Thiel's techniques lead to response that has more upper-octave energy than you'll get from such competing speaker manufacturers as Apogee

Acoustics, B&W, Genesis, and Vandersteen. Some listeners will feel Thiel speakers sound a little bright, while other listeners will simply consider the Thiel sound more detailed. Your opinion will probably depend on where you prefer to sit in a concert hall; the Thiels will sound more natural if you normally sit up front, less natural if you sit more toward the rear of the hall. This response, combined with some of the most extended highs of any Thiel loudspeaker and the CS6's exceptional off-axis high frequency response, can produce outstanding results with good to great recordings. But for these same reasons, the CS6 is not a forgiving or euphonic speaker. The effects of close miking, bad digital sound, edgy microphones, and recording electronics that mess up the top octaves are reproduced all too accurately. Truth is not always a blessing.

Placing the CS6s carefully, to get the best bass response, is no more trouble than usual. But if you locate them where standing waves can suck out part of the bass, their frequency balance may seem to tilt more toward the treble than would be the case with other speakers. Luckily, a properly broken-in Thiel CS6 has excellent bass response, and you usually don't have to move it around much to lock in a proper balance between bass and treble. When I finished positioning the CS6s, they produced the flattest overall frequency response that I've ever achieved in my listening room, as measured by my third-octave spectrum analyzer.

My final caveat is that, while the CS6 is one of the most amplifier- and cable-tolerant Thiel speakers in recent memory, it should not be used

with amplifiers that emphasize or harden the highs (more likely with older amps than modern ones); it will accurately reproduce any edginess in your audio system. That said, I had no problems using transistor amplifiers ranging from the Adcom GFA-5800 to Classé, Pass Labs, and Krell amps. The timbre and dynamics of the CS6 also worked particularly well with tube amps, as I found when I tried friends' Conrad-Johnson and VAC amplifiers.

The CS6 comes in a wide range of finishes (including custom finishes) and grille cloths, and its surfaces make me think more of sculpture than of technology. The Thiel's appearance is more than a passing asset in an era when there is less and less tolerance for obtrusive hi-tech—especially in home theater, where five speakers are required instead of two. Further, the speaker cables connect to the CS6's bottom rather than to the back, making this one of the few speakers that lets you hide your cables under the rug.

In summary, the CS6 is a reference-quality speaker at what approaches a reasonable price. It has no euphonic colorations or eccentricities to mask defects in your recordings or your audio system, but no audiophile in his right mind invests in coloration over accuracy. The CS6 has all the qualities a true, top-quality, high-end speaker should have. It sounds and looks beautiful. A

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