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ATC Multichannel Concept 7 Collection powered surround speaker system

By J. Gordon Holt • October, 2000

Something that never fails to irritate me is an intemperately enthusiastic review of an outrageously expensive product. I'm sure this is partly because I hate reading about something that might just be every bit as good as the reviewer says it is when I can't afford to buy it. But I think the greater part of my pique is because I suspect the reviewer was so awestruck by the product's princely price that he couldn't bring himself to find fault with it. Oh, sure, he'll pick a few nits just to show how perceptive he is, but his "report" will essentially be an exercise in idolatry, with nary a question about value for money.



Some reviewers (writing in other magazines, of course) are so slavishly consistent in their mindless veneration of five-digit pricing that their reaction is knee-jerk, even when a particular product seems ludicrously priced only to appeal to adolescent millionaires who compulsively buy the most expensive of everything just to prove that they can.

Yet from time to time I'm reminded that some ridiculously expensive products may actually be worth the asking price. One such—a massive power amp made by Boulder Amplifiers and selling for more than a quarter of what my home is worth—sounds better than any other amp I've ever heard, and by a substantial margin. But that's only for two—admittedly superb—channels of amplification. It doesn't include center, surround, and subwoofer speakers, or the extra amplifiers to

drive them, all of which are included and fully integrated into the ATC package reviewed here. That doesn't make the \$93,000 ATC Multichannel Concept 7 Collection (hereinafter referred to simply as C7) any less affordable to poverty-stricken reviewers, but it makes it look a lot less exorbitant.

Founded in England in 1974 by Aussie Billy Woodman (who is still its prez and chief designer), Acoustic Transducer Company, best known by their initials, ATC, started out making custom loudspeaker drivers for recording studios. They made their first complete speaker system in 1978, introduced a compact consumer monitor in 1990, and in 1996 launched a proprietary "super-linear" magnet design to minimize the adverse effects of hysteresis (see sidebar, "Hysteresis"). Today, ATC is the best-known and most respected pro speaker company in Europe, where their clients include every major audio name.

Still, few people on this side of the Atlantic have ever heard of ATC, and they figured their plunge into the US domestic market would have to make a major, attention-getting splash. They needed a system that would make a visual and audible "statement"—a term that, in my experience, often implies some sort of assault on good taste.

That is not the case with the C7, though I confess I find their appearance more impressive than attractive. Each unit consists of an extruded aluminum frame with rounded corners (to reduce edge diffraction), supporting gently curved side panels of thick, medium-density fiberboard. The subwoofer and center channel are capped with an inch-thick slab of acrylic-like material that looks—and responds to a knuckle-rap—like marble. In the system tested, the L, R, and surrounds were identical. Each was capped with a shallow cup of some composite material that went bock when I tapped it, but the cups seemed to have no adverse effect on the sound. I'm told that later production will have the same acrylic endcaps as the center and subwoofer.

The C7's vaguely art-deco appearance reminds me of the curves and tapered chrome ribs of Ginger Rogers' furniture and Buck Rogers' space ships. The system won't blend with any contemporary décor I can imagine, but my problem with its appearance was less a matter of décor and more a matter of appropriateness. Many home-theater buffs, particularly those who might be able to conceive of buying in this price range, don't want their speakers to make a visual statement; they want them to be like movie-theater speakers: invisible. Visible loudspeakers call continuous attention to the fact that the movie is only a movie, in violation of the movie exhibitor's first principle: The machinery that makes the magic must be kept out of sight, like the Wizard of Oz behind his curtain. In this respect the C7 is more like most exotic, high-end, audio-only speakers: it is clearly not designed to be modestly concealed.

Description

ATC sheds little light on the design and construction of their speakers because, except for some of the patented innovations that contribute to sonic excellence (like Super Linearity), they evidently feel that other nitty-gritty details ain't nobody's business but their own. I can't argue with that. When a product gives me no choices about how it's configured, I don't care to know how because there's no point in my knowing. I care about how it looks, how it sounds, and how reliable it is—that's it.

I am, however, predisposed to like powered loudspeakers because they're the best way to go. Properly done, designing amplifiers and speakers specifically for each other allows every component to be precisely matched to the others. Unlike the American audiophile tradition of mixing and matching, which even its most devout disciples will admit is pretty much a crapshoot, system integration lets every parameter of every component be optimized for all the others. Each amplifier can be tailored to deliver only as much power as its driver needs to work optimally, but

not enough to burn it out; driver equalization can be added with the knowledge that it will behave tidily and predictably in every setup; and amplifier damping can be made to perfectly complement the LF characteristics of the woofer and its enclosure.

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The whole thing is neat, simple, and—theoretically, at least—capable of better performance than is usually gotten from separate components. The only potential drawback is that good loudspeaker designers are not always good amplifier designers, and vice versa, so a powered speaker is not necessarily better than a passive one. It can be, but it must be judged on its own merits—which, of course, was my intent here.



After its price, the second thing I noticed about the C7 system was how heavy its cabinets are. For someone accustomed to passive speakers, which are only wooden boxes with a few pounds of magnets in them, the mass of the C7 speakers was intimidating even as I realized that each box houses from one to three beefy amplifiers. Even if each amplifier weighed only 30 pounds, that would be 90 pounds for one of the 3-way units before you added the driver(s) and the heavily braced box.

Despite this, the full-range left, right, and surround speakers are relatively easy to move, even with their foot

spikes installed, because their relatively compact footprint makes them easy to "walk" from one location to another. On the other hand, you'd have to be foolhardy or drunk to try moving the woofer or center-channel unassisted. Most of the weight of the full-range L, R, and surrounds is near the bottom of the cabinets, which makes them very stable despite their height. No toddler could knock one of them over without using an auto jack, and even a beefy adult would have to tackle it with intent to harm in order to topple it.

The 3-way speakers have no tweaking controls—no driver-level or equalization adjustments. This struck me as indicative either of ATC's smug arrogance or of supreme confidence in the speakers' designed-in balance. The subwoofer has continually variable controls for level, bottom

lift, and lowpass crossover from 50Hz to 2kHz. The unusually high upper figure seems to imply an extremely fast subwoofer, and its sound tended to confirm that. The full-range speakers have a shaped dispersion pattern similar to what THX requires: 30° horizontal dispersion, 10° vertical. This produces a wide seating area while limiting reflections from the floor and ceiling, for minimal smearing.

The accompanying literature describes a signal-sensing power auto-Off/On function, but in fact the speakers I got (which were very early units) were not so equipped. Having to turn six speakers off and on manually every time you want to use them, from switches artfully concealed behind the enclosures, may not be all that big a deal, but it's completely unacceptable in what, at this price, is unarguably a luxury product. (The very rich do not bend over for anyone.) There was also supposed to be a selectable "movie mode"—presumably with hyped bass—but that feature also seemed to be absent from my review system. I couldn't care less about the "movie mode," but I'd like to assume that the missing auto-On/Off feature will be part of the C7 by the time you read this review.

Installation and Listening

The C7 was delivered and set up by Steve Kregling of ATC importer Flat Earth Audio. All of the units were initially placed where most other systems have worked optimally in my room: the L and R speakers closely flanking my 7-foot-wide Stewart projection screen, the center-channel right between them and a little farther back, the surrounds behind the listening area at $\pm 120^\circ$ from front center, and the downfiring subwoofer between the left front speaker and the left wall. The rear speakers were aimed to converge at the rear middle of the listening area.

ATC recommends running the L/C/R and surround speakers full-range and setting the sub to around 40Hz lowpass to fill out the extreme low end, which is the configuration I started with. I balanced out all channels using my reference Lexicon DC-2's internal signal generator and the RadioShack 33-2050 sound meter (70dB range, C weighting, slow response, aimed vertically).

The first thing I auditioned was a compilation DAT tape of film-sound excerpts—music, dialogue, and effects from LDs and DVDs—and it took only the first of these to make it clear that this system was something special. The sound was the furthest thing imaginable from the lifelessly laid-back daintiness of the home-theater speakers from most high-end speaker companies. More striking, though, was the amazing resemblance of most reproduced material to the sound of the real thing.

Spectral balance, which I had initially set by measurement alone, proved to be perfect except for a slight heaviness through a narrow bass range centered at around 40Hz. This prompted me to roll off the sub and upper-range speakers at 50Hz, which is how I always run my reference Tannoy 10DMT/Genesis 900 system. The heaviness was gone. Then I started listening seriously.

The ATC C7 system provoked the most protracted orgy of auditioning of any review system I can recall. I dragged out dozens of LPs, CDs, DVDs, and home-made tapes that I hadn't listened to for years, sampling some and getting so involved with others that I had to listen all the way through. I was in pig heaven! Unlike most of the "home theater" systems I've reviewed in the last 10 years, the C7 seemed more intent on reproducing reality than on glorifying music.

In terms of the real thing more aspects of the sound were right than weren't. Dialogue intelligibility, a common weakness with audiophile-speaker home-theater systems, was outstanding, not because of any horn-type sizzle or "aw" coloration, but because of truly amazing clarity and inner detail. The C7 was as free from coloration as any

speaker I've ever had in my home; pink noise revealed no perceptible sizzles, rumbles, or vowel colorations. And beyond mere intelligibility, dialogue had an uncanny degree of realism, as did vocals, sound effects, and interior spaces.

The C7 did not seem to compress loud material at all, making explosions, gunshots, and clanging swords harrowingly realistic. It was equally responsive to quiet sounds like dripping water, rustling leaves, and Foley effects like rustling clothing and clinking jewelry. On many occasions, isolated surround effects were so startlingly realistic that—well, they startled me. (Sheffield Records' Doug Sax calls this "jump factor.")

The C7 was absolutely quiet. With the Lexicon's gain set to 12dB above Dolby/THX zero, there was no hum or hiss audible with my ear right up against any speaker. And this despite the fact that the speakers were plugged into different AC outlets on both sides of the room. Impressive!

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The subwoofer was amazing. Rated at an awesome 118dB of continuous output (a claim I did not test but have no intention of questioning), it took everything I threw at it without flinching. I never heard it stumble on the most demanding material (the rock drop in *Aladdin*, the drums at the start of *The Last of the Mohicans*) at THX listening levels, which peak out at around 105dB. Also, for reasons I can't explain, the C7's bass in my room was unusually smooth—more so than with any other sub I've used, even though the sub was placed exactly where I always put subwoofers.

Filtered pink noise revealed no discernible low-frequency pitch, which is decidedly unusual in a room with no special bass treatment or equalization. Broadband bass sounds, like the reservoir spillways in *The Fugitive* and the submarine flooding at the opening of *The Abyss*, were virtually free from pitch—something you almost never hear from even the best theater sound systems.

And the bass seemed to have no lower limit. Extremely low effects literally shook the floor, but the sensation was more that of a teeth-jarring thud than the usual woolly boom. Some sounds I heard were so deep that I had to mute the system to reassure myself they weren't coming from outside my house. Bass like this is hard to come by at any price.

Listening to Music

Considering how well the C7 handled real-world sounds like voices and

effects, I was not surprised that it reproduced music with astonishing realism. I'm a symphonic-music nut, and with season tickets to one orchestra each summer and a contract to record all the winter concerts of another, I probably hear as much symphonic music as any reviewer. The ATC C7 came as close as any other system I've heard to reproducing the real sound of a real orchestra.

My measure of reproduced sound quality is a system's ability to raise goosebumps, and the C7 raised them so often it was sometimes almost exhausting. With two small exceptions I'll get to later, every instrument sounded so much like its real-world counterpart that I had to pay very close attention to hear any differences. Audiophiles who claim that reproduced sound isn't remotely like the real thing are either listening to the wrong systems (and probably in two channels) or are unfamiliar with the sound of real music. The 5.1 C7 did it right. Even screechy old Columbia and Mercury LPs were more musical than I've ever heard; yeah, the steeliness was still there, but it didn't drive me up the wall the way it usually does. The system easily passed the merciless next-room test, wherein, heard from another room, a really good system will sound like real instruments heard from another room.

The C7 had tremendous resolution, even at prodigious volume levels. At 105dB SPL, which is about as loud as I can stand, there was no congestion. I could listen right into the complex wash of sound and follow any instrument I wished. Above all, the sound was effortlessly clean, in a way I have never before heard except from the real thing. Bass detail was phenomenal: bass drum was a visceral thud without a trace of hangover; and bowed double-basses throbbed, their individual cycles so distinct I could almost count them.

Dynamic range was awesome! The system did not seem to compress crescendos at all, and that, plus its tremendously fast attacks, gave music a quality of vitality and excitement I rarely hear reproduced. The highs had that combination of smoothness, openness, and extraordinary attack speed that is unique to live acoustical music, and the system was truly awesome in its ability to reveal differences between recordings. Neither intrinsically warm nor cool, its sound reflected that of the recording as well if not better than any system I can recall having heard.

Of course, there's a price to be paid for this kind of accuracy: it does nothing to glorify the sound of recordings. It didn't exaggerate tape overload, scrape flutter, vinyl distortion, or surface noise, but it didn't much minimize them either. The bright side was that the better the recording, the more realistic it sounded. My symphonic recordings from last season (made with a single M/S pair of mikes mounted 4 feet above and 8 feet behind the conductor's head) sounded very much like what I hear from row G in the hall, including the locations of instruments.

The C7 did not, however, have quite the mercilessly analytical detail of the best professional monitors, and I'm not sure that's such a good thing. If I were to pick nits, I would say the C7 was slightly deficient in that part of the lower midrange that contributes the "aw" quality of cellos and the big brass instruments, and slightly less deficient in that part of the high end that contributes the staccato edge of crackling noises and a trombone's blat. (I've heard only two systems that surpass the C7 in these areas, and both were made by pro firm Westlake Audio. Steve Kregling implied that the C7 might be just a little less revealing than ATC's studio monitors, thus raising the possibility of reviewing one of their powered studio speakers in the future.)

There were a couple of other minor quibbles. For one, the center channel is about a foot and a half lower than the L/R speakers, which caused a slight but definite height discontinuity. Soundstage-wide rows of instruments sounded as if ranged in a shallow U. Raising the center-channel eliminated the discrepancy, but the screen was then too

close to the unit's polished top, which reflected the picture—very distractingly. Black fabric draped across the top got rid of the reflection, but why a polished top to begin with? Perhaps some of the C7's styling features warrant reconsideration.

Breathless Conclusion

I have never before heard a system that does so many things so nearly perfectly. Despite my quibbles about the Concept 7's reproduction of cellos and the biggest brass instruments, everything else sounded so amazingly like the real thing that the differences hardly mattered. The C7 answered once and for all the question of whether any one system can do equal justice to music and soundtracks, and the answer is a resounding Yes. In fact, the C7 transcended any considerations of personal preference for one "kind" of sound or another. It just was. To anyone who knows the sound of real music, everything about the C7 should sound simply and ineffably right. The system was so much better than anything else I've heard that it makes more sense to compare it with real sound than with other systems.

Is it really worth \$93,000? Only, to my mind, if there's nothing else available that sounds as good and costs less, and I'm not at all sure there is. I'm going to be auditioning more studio monitors in future—maybe I'll find something I can recommend to people who can't afford a \$93,000 system no matter how good it is. Meanwhile, the Concept 7 is my nomination for best speaker system in the world. Recommended, of course.

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SCM 70ASL 3-way L/R/LS/RS speaker

Drivers: 1" dome tweeter, 3" dome midrange, 9" cone woofer

Amplifiers: 50W treble, 100W mid, 200W bass

Frequency response: 55Hz-18kHz, ± 2 dB

Balanced input: 10kohms

Maximum output: 112dB continuous

Power consumption: 90W quiescent, 350W at rated output

Dimensions: 50" x 16" x 18" (HxWxD)

Weight: 159 lbs.

SCM 2C70ASL center-channel speaker

Drivers: 1" dome tweeter, 3" dome midrange, two 9" cone woofers

Electrical specs identical to SCM 70ASL

Dimensions: 25" x 47" x 21" (HxWxD)

Weight: 250 lbs.

SCM 0.1/15C7 powered subwoofer

Driver: 15" cone

Frequency response: 30Hz-300kHz, ± 2 dB

Amplifier: 1000W peak, 650W continuous

Power consumption: 40W quiescent, 720W rated output

Dimensions: 26" x 25" x 25" (WxHxD)

Weight: 200 lbs.

System price: \$92,500

Manufacturer

ATC (Acoustic Transducer Company)

Loudspeaker Technology Ltd.

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Digital Sources

Pioneer CLD-99 LD/CD player

Toshiba SD-9000 DVD player

Sony DTC-2000ES DAT deck

Surround Processor

Lexicon DC-2

Cables

Canare LV-61S S/PDIF and video composite coax

Misc.

Owens-Corning 4" painted Fiberglas cloth, one wall

Wall-to-wall wool carpet with felt underliner

Wool window drapes (closed)

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ATC Multichannel Concept 7 Collection powered surround speaker system: Measurements

Measurements

Measurements performed by John Atkinson

The sensitivities and impedances of the ATC Concept 7 loudspeakers were not measured: In a speaker system with integrated amplifiers, neither is relevant. The amplifiers are designed to work together with the individual drive-units to provide optimal performance.

The frequency response of the L/R/surround speaker, shown in **Fig.1**, is about as linear as modern loudspeakers get. JGH's single criticism of the speakers was that they exhibited a slight lack of lower-midrange fullness and natural high-end bite with certain instruments. The small dip at 300Hz, and a larger one averaging about 3dB between 3kHz and 6kHz, might explain either or both of these observations. The bass, as Gordon notes, holds up strongly to 40Hz.

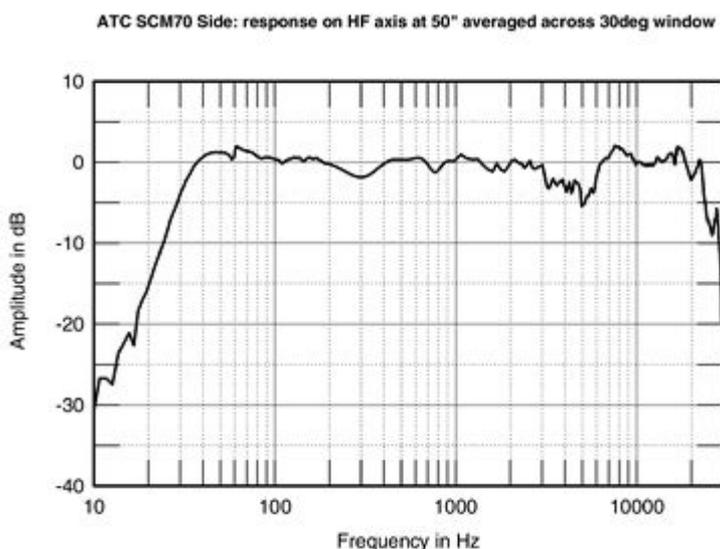


Fig.1: ATC SCM 70ASL, anechoic response on tweeter axis at 50", averaged across a 30° horizontal window and corrected for microphone response, combined with nearfield woofer and port responses (2ohms/vertical).

The lateral dispersion is good, with the response falling off rapidly but smoothly as the listener moves farther off-axis. The vertical dispersion is even as long as the listener's ear height is relatively close to the tweeter axis.

Though we seldom print it in our "Measurements" sidebars, we usually

mention in passing a speaker's delayed resonance, or "waterfall," plot. This time, the absence of our usual impedance plots leaves space for us to reproduce the SCM 70ASL's waterfall plot (**Fig.2**), the curves of which indicate how the speaker's response dies away when the driving signal is switched off. A perfect speaker would show a single curve at the 0.00 second point, then a dropoff to nothing as time elapses. Perfection is impossible in the real world, however. The results in Fig.2, while not the best we have measured, are good.

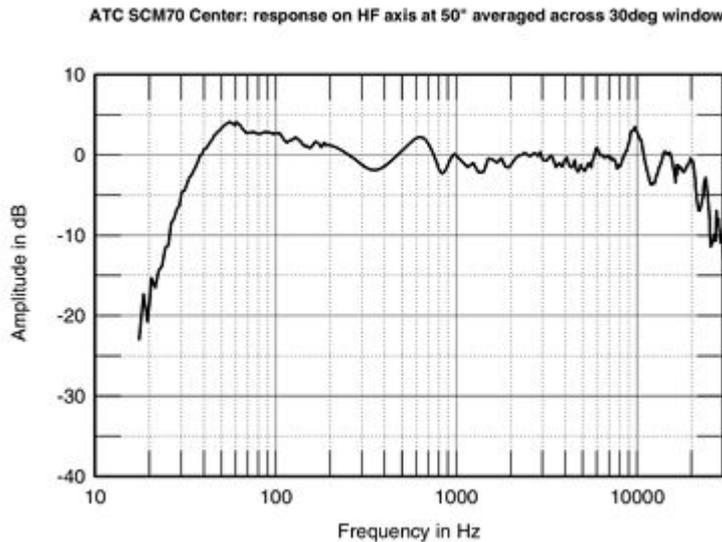


Fig.2: ATC SCM 70ASL, delayed resonances.

The frequency response of the SCM 2C70ASL center-channel is shown in **Fig.2**. There is a little extra midbass in comparison with the SCM 70ASL. (Both speakers are ported, but the center-channel's small ports operate as pressure-relief vents and contribute little to the speaker's bass extension.) The middle treble dip is also absent in the center-channel, suggesting a slight difference between the crossover designs of the two speakers. Altogether, however, this is also a fine result. We did not measure the dispersion of the center-channel speaker beyond the 30° averaged window reflected in Fig.3 because the speaker's size and weight made this logistically impossible without incurring a hernia!

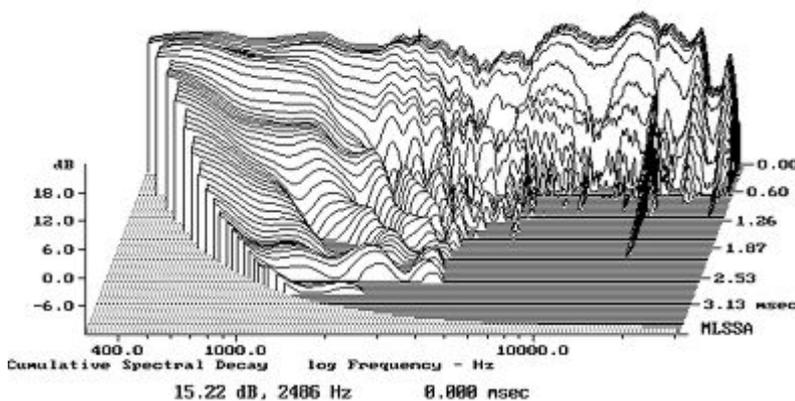


Fig.3: ATC SCM 2C70ASL, anechoic response on tweeter axis at 50°, averaged across a 30° horizontal window and corrected for microphone response, combined with nearfield woofer response (2ohms/vertical div.).

The delayed resonance plot of the SCM 2C70ASL is shown in **Fig.4**. It is a little less clean than the plot for the SCM 70ASL in Fig.3, with a noticeable resonance at just under 6kHz.

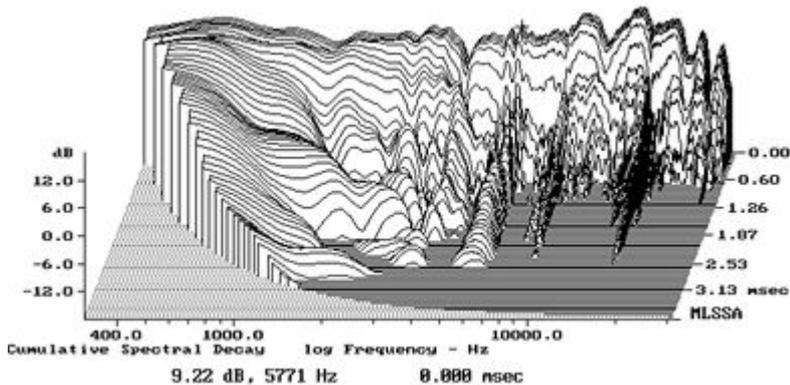


Fig.4: ATC SCM 2C70ASL, delayed resonances.

Nothing in the measured performance of the ATC Concept 7 system deserves more than a moment's reflection: It's a solid set of results that in no way contradicts JGH's strongly (to say the least) positive comments.—*TJN*

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Hysteresis

Hysteresis is a term that's been bandied about by some US audio manufacturers for years, but few people understand that it refers to a discrepancy between the amount of magnetic energy applied to a block of steel (by current passing through a coil, for example) and the degree to which the steel is magnetized by that energy. Normally, the degree of magnetism lags significantly behind the magnetizing force, both when the force is magnetizing and then when it is de-magnetizing the steel. A plot of the relationship produces a parallelogram, called a hysteresis box.

In a dynamic loudspeaker, hysteresis acts to change the relationship between applied signal voltage and voice-coil displacement, which by definition causes unwanted distortion. I didn't understand ATC's explanation of how their "Super-Linear" system counters the effect, but the C7 system sounded so much better than I'm accustomed to that I am prepared to believe that it works.—*JGH*

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