

Review of TAD' CE1 TX loudspeakers by Herb Reichert, 05/2023 on :



## TAD CE1TX loudspeaker



The most money I've ever spent on a pair of loudspeakers was back in the early 1990s, when I bought a pair of used TAD TH-4001 wooden horns and their associated TD-4001 compression drivers. The TAD horn's smooth, micro-resolved response was a refinement upgrade from my multicell Altec horns; plus, the TADs' French-polished wood looked radically less industrial than the soldered-tin, tar-filled 1005/288C horns they replaced. None of my horn-fanatic friends had anything sonically or aesthetically comparable, and all of them were envious. I didn't keep the TADs long, because the friend who admired them most made me a very "friendly" offer.

That was my first experience with Japanese loudspeaker design, and it exposed me to a level of engineering precision and fine craftsmanship I had not yet encountered in American-made speakers.

Thirty years later, I find myself listening to a pair of brand-new TAD speakers, and once again, none of my friends have anything sonically or aesthetically comparable. This time, though, it's a living room-friendly, three-way, dynamic-driver standmount/bookshelf called Compact Evolution One – Bookshelf Speaker System. The model number is TAD-CE1TX-WN. It is exposing me to a level of fit'n'finish and sonic insightfulness that is rare among contemporary speakers, even at the highest prices.

### **In the beginning**

The company everybody knows as Pioneer was founded by Nozomu Matsumoto in 1938 as a radio store and speaker repair shop in Tokyo. Over the ensuing decades, Pioneer grew into a revered brand with a global reach. In 1978, Pioneer decided to break into the professional speaker market with a line of all-out recording studio monitors manufactured under the name Technical Audio Devices Laboratories. TAD's first product was the TD-4001 compression driver mentioned above.

According to the TAD website, that driver and its associated TH-4001 horn "found its way into famed recording studios around the world, including those designed by Tom Hidley, who was a top-rated acoustic designer of the time, as well as AIR Studios, Capitol Records studios, and Record Plant.

"TAD speaker units were also used as part of a sound reinforcement system during the concert tour the Eagles made around Japan in 1979, during which the performance of the TAD speakers dazzled audiences. Impressed with the reputation of TAD speakers, big-name musicians such as Jimmy Page and Prince installed TAD speakers in their private recording studios."

In 2000, TAD introduced its first speaker designed specifically for home audio use, the floorstanding M1, which featured the first incarnation of TAD's now-famous coaxial Coherent Source Transducer. The M1 evolved into today's flagship Reference One Floor Standing Speaker (TAD-R1TX-EB/TAD-R1TX-BR), the big brother of the Compact Evolution One I'm reviewing here.



## Description

What separates Technical Audio Devices Compact Evolution One from its audiophile-speaker competitors is its highly evolved 5.5" coaxial "Coherent Source Transducer" (CST) driver, which is manufactured in-house in Japan and features a "newly developed" magnesium midrange cone with a concentrically mounted beryllium dome tweeter that, according to TAD, is manufactured with their "proprietary vapor deposition technique." Impressively, TAD's CST is specified to operate between 250Hz and 100kHz. The CE1TX is a three-way design. The bottom three octaves are reproduced by TAD's 7" "aramid composite" (footnote 1) bass driver, which is made of "five layers of woven and non-woven fabric" that TAD says "optimizes the vibration characteristics of the shell-shaped diaphragm that integrates the center and the cone into a single piece."

Another feature, which surely contributes to the CE1TX's sound character, is its "Bidirectional ADS Port"; ADS is short for "AeroDynamic Slot." These bidirectional slots are slit-shaped ducts with flared openings behind the speakers' 17" x 13" sculpted-aluminum side panels, which appear to float about 4mm beyond the cabinet's sides. According to TAD's website, these slots allow internal air to flow out smoothly, without turbulence: "The symmetrically placed port openings ... reduce port noise and keep internal standing waves from escaping from the ports."

These made-in-Japan speakers are heavy (63.9lb) and on the large side for standmounts, measuring 11.3" wide x 20" high x 17.6" deep. Their sensitivity is listed as 85dB/W/m, and their nominal impedance is specified as 4 ohms. The CE1TX is priced at \$32,500/pair; a pair of optional stands adds \$2500.

### **Setup**

Early in my TAD auditions, I realized that the CE1TX presents unusually consistent dispersion in both the vertical and horizontal planes, and that those dual side ports make them easy to place. The first couple of days, I moved them about in an obligatory manner; no matter where I set them down, they just looked at me and shrugged as if to say, "Put us anywhere you want. We don't care." I didn't put them in the refrigerator, or under the bed, but as I was moving them, I remembered that professional studio monitors are not typically designed to sit far from the front wall as many audiophile speakers are.

Monitor speakers are, by necessity, friendly with room boundaries. I didn't try it, but I feel pretty certain the CE1TX would even work on a big desktop or a wide shelf, as long as the tweeters were roughly level with the listener's eyes and toed in to cross behind the listener's head.

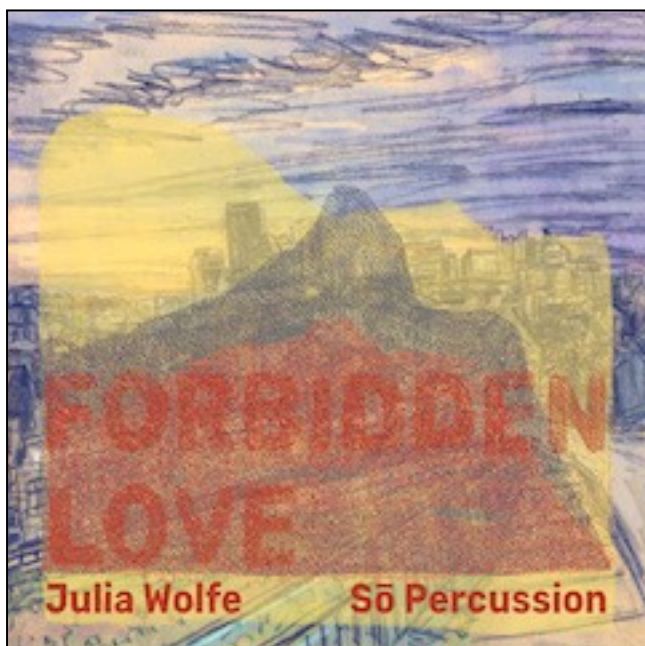
My review samples ended up on 24" Sound Anchor Reference stands, about 6' apart and maybe 30" from their front face to the wall behind them. In that position, the 50Hz-to-200Hz region was flatter and cleaner than with any speaker I've reviewed in this room. All listening was done with the included woofer grilles off.

### **Listening**

The distributor told me that my pair of CE1TXs had more than 100 hours on them on arrival. Nevertheless, for the first week, I let them play 24/7 in the background at low volume while I worked in my studio. Yet, over and over, I'd have to stop what I was doing and check my iPad to see: what is this fabulous new music Roon Radio has discovered for me? Every time I looked, it was some new conductor or brand of large-scale classical music I don't usually enjoy because the orchestra is too big, the music's bombastic, and the recording sounds clogged and fatiguing to listen to.

This happened so frequently that the first thing I wrote in my notes was "These speakers force me to like music I don't like."

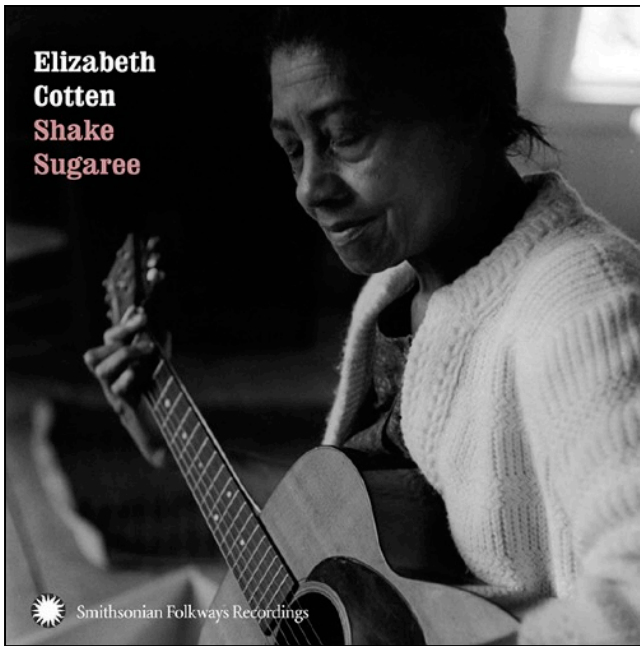
Powered by Parasound's Halo A 21+ amplifier, the CE1TX loudspeakers sorted and presented the densest, most complicated and overproduced music in ways that made it more intelligible and agreeable—and oftentimes more beautiful than it is with my Falcons powered by the same Parasound amp. During these early auditions, the CE1TXs made every recording sound right and uniquely "like itself " and, most likely, the way its producers hoped it would sound.



With this combination, on the mind-pulling 33-minute *Forbidden Love* by Pulitzer Prize–winning composer Julia Wolfe (24/96 FLAC, Nonesuch/Qobuz), the Sō Percussion Ensemble generated startling, percussive struck-string transients that I could feel in my gut. The Sō Ensemble did this while painting the most delicate details into a deep, galaxy-like space behind them. If you enjoy the sound of sounds like I do, this demonstration-quality recording will thrill you and your visitors.

As I listened to the Julia Wolfe, I kept thinking, it sounds like I am hearing everything on the recording, yet the sound is never too rough, sharp, dry, wet, muddled, muted, short, or cold, or anything! Nothing is lost, and nothing is exaggerated. The CE1TXs sounded more supple, textured, and relaxed than the Genelec G Threes or my memory of the Harbeth 30.2 monitor speakers—which is the one speaker this TAD reminds me of most. Their sonics and tone balance are similar, but the CE1TX is smoother, finer grained, and focuses the lens another half-turn. What surprised me was how these TAD speakers made the Parasound A 21+ sound more colorful, three-dimensional, and energetic than usual. I like it when a new speaker makes a familiar amp sound better. And vice-versa.





## Shake Sugaree

I am embarrassed to say I'd never heard of singer–songwriter–guitar player extraordinaire Elizabeth Cotten (1893–1987). A song she wrote when she was 11 years old, "Freight Train," was covered by Peter, Paul and Mary and became a staple of the 1960s folk revival (footnote 2). Her signature tune, "Shake Sugaree," was covered by both Dylan and the Grateful Dead. I discovered Cotten's music because Roon Radio steered me to her after I listened to gospel by Old Regular Baptists. The sound of her voice and

her sophisticated, left-handed, upside-down guitar picking caused her to jump right out of the music stream. Cotten's talent was discovered while she was working as a maid for Pete Seeger's family in the early 1950s. Through the CE1TXs, her vocal tone was exceedingly natural, disarmingly clear and sincere—and adorably unpretentious (16/44.1 FLAC, Smithsonian Folkways/Tidal).



While Shake Sugaree was playing, a retired audio dealer friend came over to pick up an amplifier. The moment he walked into the room, he stopped and said "Whoa! What are those speakers?" He told me that he knew instantly, "That was how that recording was supposed to sound." And like me, he'd never heard of Elizabeth Cotten.

I asked him how many Japanese-made speakers he had sold back in the day. He couldn't remember any but said, "This here is a different type of sound than most Americans are used to." "In what way?" I inquired. "It's more finely balanced," he opined.

### First Watt SIT-3

After playing the 4 ohm-rated CE1TXs for two weeks using the Parasound A 21+, which can deliver 500W into 4 ohms, I connected the gleaming TADs to my Nelson Pass-designed, single-ended, no-feedback First Watt SIT-3 amplifier—just to see what would happen. The SIT-3 is specified to make 18W into 8 ohms and 30W into 4 ohms. I was curious whether it could drive the TADs at all, and if it did, whether it would add some of its special air and tone flavor to the CE1TX's almost dry (but not dry) presentation.

I did not anticipate how much more vibrant and stereoscopic the sound would become. The change was dramatic, such that I felt like I was like listening to a different speaker and a different amplifier. The SIT-3 has never sounded this dynamic before.



Playing Thomas Oliemans singing the Charles Aznavour song, "For Me Formidable" from the album Formidable! (French Chansons) (24/192 FLAC, Channel Classic/Qobuz), the sound was more color-saturated and appealing in a wish I were in Paris way. More than the mighty Parasound, the SIT-3 emphasized the spirit, flavor, and rich tone of chanson Francaise. Powering the CE1TXs, the SIT-3 did not feel like a small amp nor a big amp: It simply disappeared.

If you like bathing in thick, feel-it-on-your-skin harmonic energy, you must

dip your toes in Tobias Klein: Chamberly (16/44.1 FLAC, Attacca/Tidal). This collection of performances by Dutch clarinetist Fie Schouten of compositions by countryman Tobias Klein is built on a framework of harmonic surprise.

It is an intense sonic spectacular, and it expanded the TAD's soundfield considerably, in every dimension, while issuing deeper, more dramatic bass than the CE1TXs had shown on any previous tracks. Actually, this was the first time I paid any attention to that question: How is the bass? I've played this album many times on the [Falcon Gold Badges](#) and more recently on the [Heretic AD614s](#), but sound textures never touched my skin and entered my mind as they did with the First Watt SIT-3 driving the CE1TXs.

I listened to violinist Sara Off playing "Alone" from her assertively dynamic album of the same name (16/44.1 FLAC, Sara Off/Tidal). With the First Watt driving the TADs, I was averaging 84dB SPL at 2m, C-weighted, with 100dB peaks—and no discernable clipping.

I always regard the SIT-3 as a darkish-sounding amplifier that, with the wrong speaker, can sound clogged. With the CE1TXs, it was sharp-focused, winter-sky clear, and darkness-free. What sane person would have predicted that a low-power, no-feedback amplifier with 11.5dB of gain could play this explosively into a speaker specced at 85dB sensitivity and 4 ohm nominal impedance? Not me.

All the observations above, with both the Parasound and First Watt amplifiers, were made with Kangai-level Ikigai speaker cables (\$6500/2m, review in progress), which an old friend had begged me to try. I never expected to like them, but I did. I thought they added energy and musical intensity to the sound, and they were in the system when I installed the CE1TXs.

After a few days of just listening—no comparing—I was convinced that the Ikigai wires were helping the CE1TXs sound livelier and more vivid. Before the TADs arrived, I imagined, from looking at their picture, that they would sound clean and tight, but possibly too tight. With the Ikigai cable, they sounded plush and relaxed, succinct, and vibrant. I left the cables in because I liked what I was hearing.

Because they are my #1 reference, I eventually re-installed my organic-earth, deep-space reference [Cardas Clear Beyond speaker cables](#). The first thing I noticed was how tall, dense, and cathedral-like the sound became. Massive. Deep. More tone saturated.

Nevertheless, to my ears, the lighter-sounding Ikigai cables let more harmonic energy through. They added a touch of extra clarity and a tangible, small-bubble effervescence. I kept them in because I liked how harmonically expansive the Ikigai made Jérémy Hababou's piano sound on *Il Était Une Fois* (24/96 FLAC naïve/Qobuz). I especially liked how satisfyingly full and resonant the lower registers sounded. Bass-region reverb tails were miles long and luxuriantly textured.



With either brand of cable, the SIT-3 powering the CE1TXs generated what felt like the most fully resolved and musically communicative sound I've encountered since I began playing records in my parents' house so many years ago.

### Pass Labs XA25

Pass Laboratories' wide-awake, wide-bandwidth, super-transparent XA25 is rated at 25Wpc into 8 ohms and 50W into 4 ohms. But John Atkinson, Stereophile's technical editor, measured 80Wpc into 8 ohms and 130Wpc into 4 ohms at 1% THD+N, his usual clipping standard. He measured the output impedance at less than 0.1 ohm. Playing Tobias Klein: Chambery, I found this to be the cleanest sounding of the three amps I tried.

This was not surprising. Power and drive-wise, the XA25 felt the opposite of fettered. The TADs never felt like they were loading the Pass amp down; in turn, the XA25 never seemed to diminish the clarity or responsiveness of the CE1TX. But something intangible was missing. With the XA25, something I could not identify made music through the TADs sound incredibly clean but less emotionally connective. Something I was unable to identify felt slightly off. The XA25 would not be the amplifier I'd choose if I owned this speaker.



## MISSISSIPPI JOHN HURT



Photos by Peter Grant

**FOLK  
SONGS  
and  
BLUES**



### Elekit TU-8900

On a perverse whim, with no expectations, I connected the TAD speakers to Elekit's 8Wpc, single-ended TU-8900 300B amplifier. As with the SIT-3, I wondered if the Elekit would work at all. It worked right away. After successfully playing Shake Sugaree, the Roonbot led me to Folk Songs and Blues by Mississippi John Hurt (16/44.1 FLAC, Mississippi John Hurt/Tidal). That's when I fell in love. On "Candy Man," it was crazy how good the tone and

texture were. Hurt's voice sounded like it came from a real person. His tricky guitar licks supported his satiny voice in a manner that made this album feel like the most genteel acoustic blues ever.

I am not recommending this 8W triode amp as an ideal choice for the CE1TXs, but I am saying that when operated within its 8W limits on low-energy program, the TU-8900 delivered more natural tone and textural magic than any other amp I tried.

### **Conclusion**

My definition of the word "best," as applied to audiophile speakers, would include expressions like "extremely well-sorted" and "exposes everything" and "flawless tone." This thought struck me now because exactly these words passed through my head over and over during the hundreds of hours I spent listening with the TAD CE1TX's. These luxuriously appointed standmounts specialize in converting tiny signal currents into moving air with atomic-clock precision—all by itself, a captivating phenomenon to witness. But what elevated these new TADs to a level of performance I've rarely experienced from any speakers, anywhere, at any price is the coexistence of that atomic-clock precision with an innate ability to present instruments and voices in a most agreeable, seductive manner.

This TAD is the finest example of speaker engineering I've ever encountered. Absolutely Class A.

## TAD CE1TX loudspeaker Measurements

### **Sidebar 3: Measurements**

I used DRA Labs' [MLSSA system](#) and a calibrated DPA 4006 microphone to measure the TAD CE1TX's behavior in the farfield, and an Earthworks QTC-40 mike for the nearfield responses. The mesh that covers the coaxial drive unit can't be removed, but the measured behavior was taken without the grille covering the woofer.

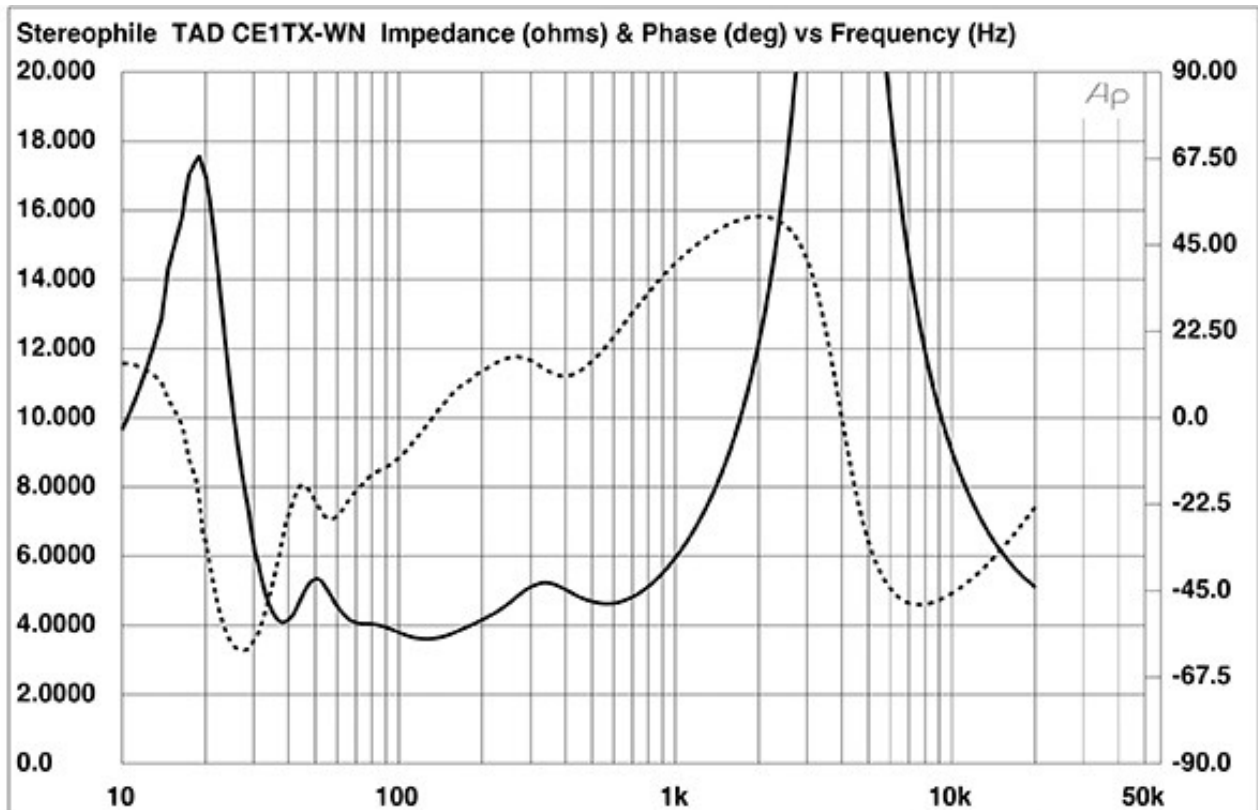


Fig.1 Tad CE1TX, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

Tad specifies the CE1TX's voltage sensitivity as 85dB/2.83V/m, which is 2dB lower than average; my B-weighted estimate was within experimental error of that figure, at 84.7dB(B)/2.83V/m. The speaker's nominal impedance is specified as 4 ohms. My measurement, taken with Dayton Audio's DATS V2 system, indicates that the impedance magnitude (fig.1, solid trace) drops slightly below 4 ohms in the lower midrange, with a minimum value of 3.61 ohms at 124Hz. The magnitude is higher than 8 ohms in the very low bass and for almost the entire treble, however. The electrical phase angle (dotted trace) is occasionally high, which means that the equivalent peak dissipation resistance, or EPDR (footnote 1), lies below 3 ohms from the midbass region through the upper midrange and in the top audio octave. The minimum EPDR values are 1.45 ohms at 35Hz, 2 ohms at 60Hz, and 2.03 ohms at 861Hz. Its low effective resistance and lowish sensitivity mean that the CE1TX needs to be paired with amplifiers that can deliver both voltage and current.

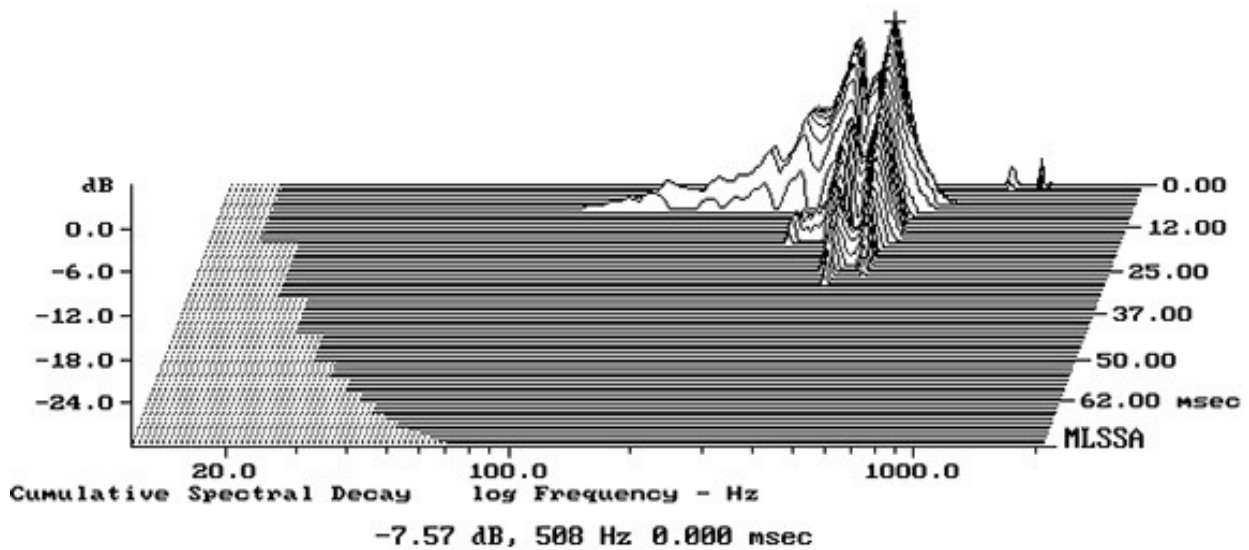


Fig.2 Tad CE1TX, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of metal plate that covers one of the sidewall (measurement bandwidth, 2kHz).

The impedance traces are free from the small discontinuities in the midrange that would indicate the presence of panel resonances in the enclosure. The wooden cabinet did seem extremely inert when I rapped it with my knuckles, and when I investigated these panels' vibrational behavior with a plastic-tape accelerometer, I didn't find any resonances. However, a fairly strong resonant mode at 588Hz was present on the metal plates that cover the reflex vents on the sides of the enclosure, with a lower-level mode slightly lower in frequency (fig.2). As these modes are both relatively high in frequency and have a high Q (Quality Factor), their effect on music should be minimal.

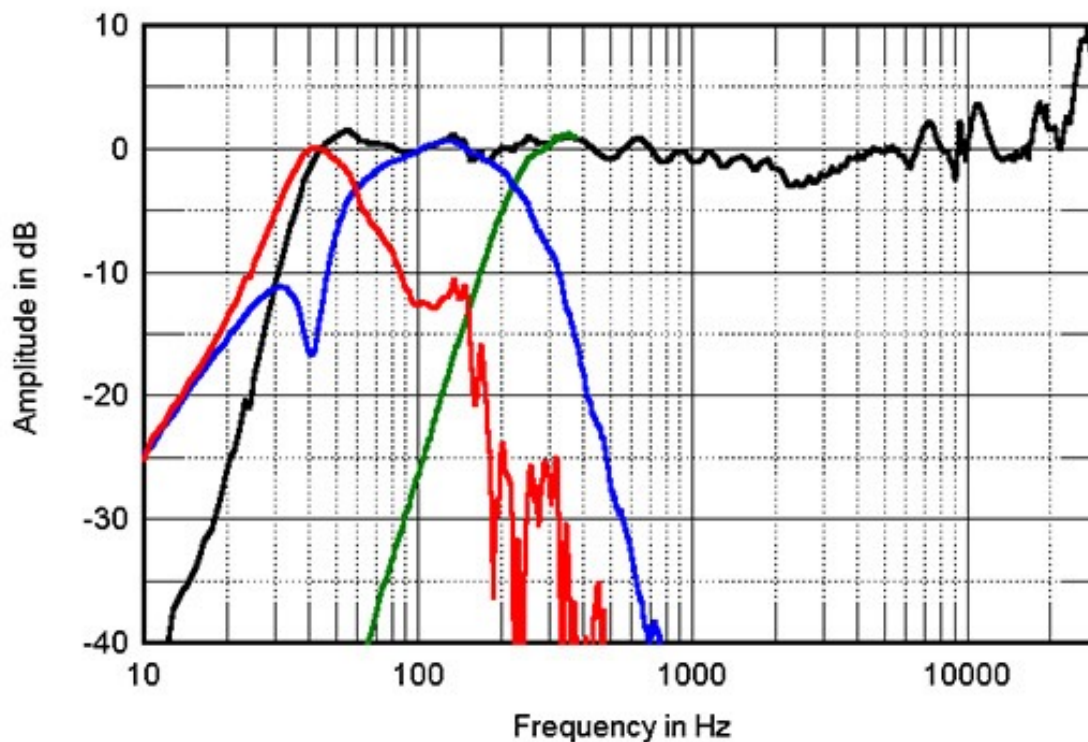


Fig.3 Tad CE1TX, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with the nearfield midrange (green), woofer (blue), and port (red) responses respectively plotted below 400Hz, 800Hz and 500Hz.

The Tad speaker's impedance-magnitude plot has a low-frequency saddle centered just below 40Hz, suggesting that this is the tuning frequency of the reflex-loading slots between the wooden side panels and the metal plates. The woofer's nearfield response (fig.3, blue trace) has the expected notch at this frequency, and the port's output (red trace) peaks sharply between 30Hz and 60Hz. The port's upper-frequency rolloff is clean overall, though some low-level peaks are present at 150Hz and between 200Hz and 500Hz. The woofer's output rolls off above 150Hz with what appears to be an 18dB/octave slope, and the midrange unit's output, measured in the nearfield (green trace), rolls off below 300Hz with the same third-order slope. The crossover frequency between these two drivers appears to be close to the specified 250Hz.

The complex sum of the midrange, woofer, and port responses is shown as the black trace below 300Hz in fig.3. The usual boost in the upper bass, which will be due to the nearfield measurement technique, is absent, which suggests that the Tad speaker's reflex alignment is tuned for articulation and low-frequency clarity rather than bass weight.

The black trace above 300Hz in fig.3 shows the CE1TX's farfield output, averaged across a 30° horizontal window centered on the tweeter axis. The balance is even but with a slight lack of energy in the presence region and some small peaks and dips above 7kHz, the latter due to the coaxial mounting of the tweeter.

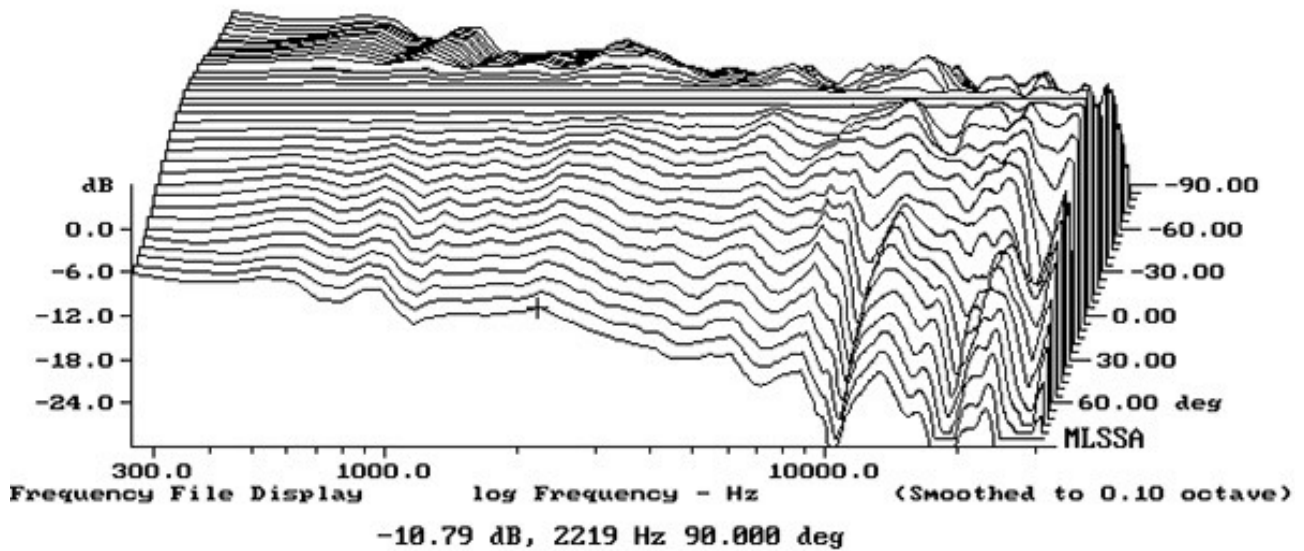


Fig.4 Tad CE1TX, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off axis, reference response, differences in response 5–90° off axis.

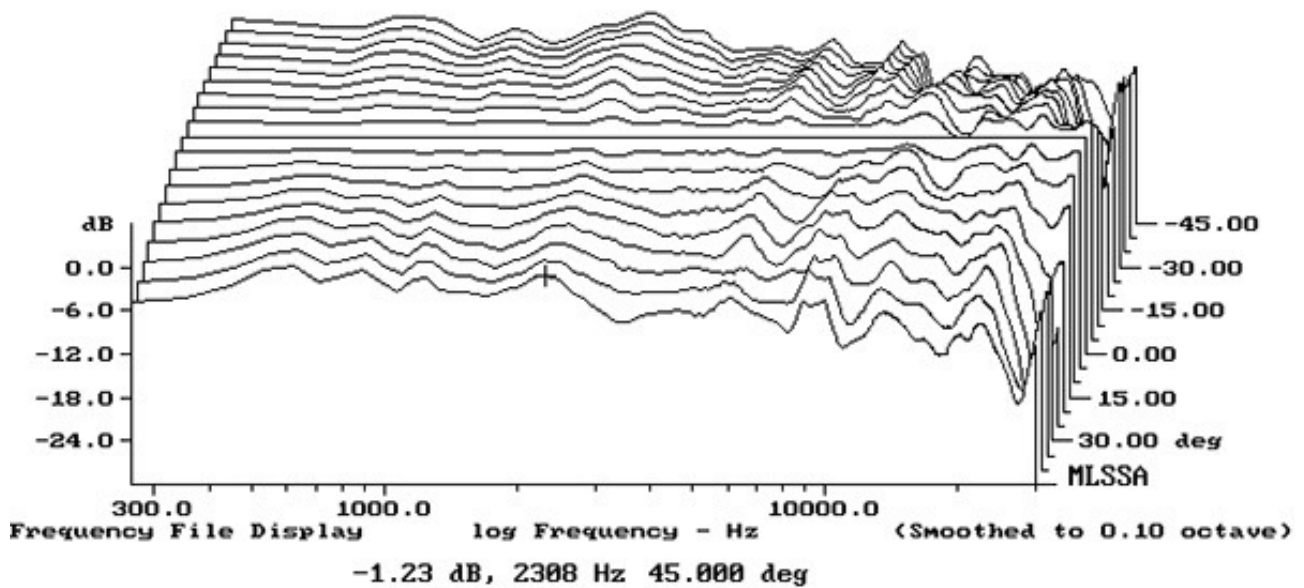


Fig.5 Tad CE1TX, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.



The Tad speaker's horizontal dispersion, normalized to the response on the tweeter axis (fig.4), is similarly uneven in the same HF region but is otherwise well-controlled. The lack of presence-region energy in the on-axis response tends to fill in to the speaker's sides, which suggests that the CE1TX's treble balance will be neutral in all but very small rooms. As expected from use of a coaxial drive unit, the vertical dispersion (fig.5) is very similar to that in the horizontal plane.

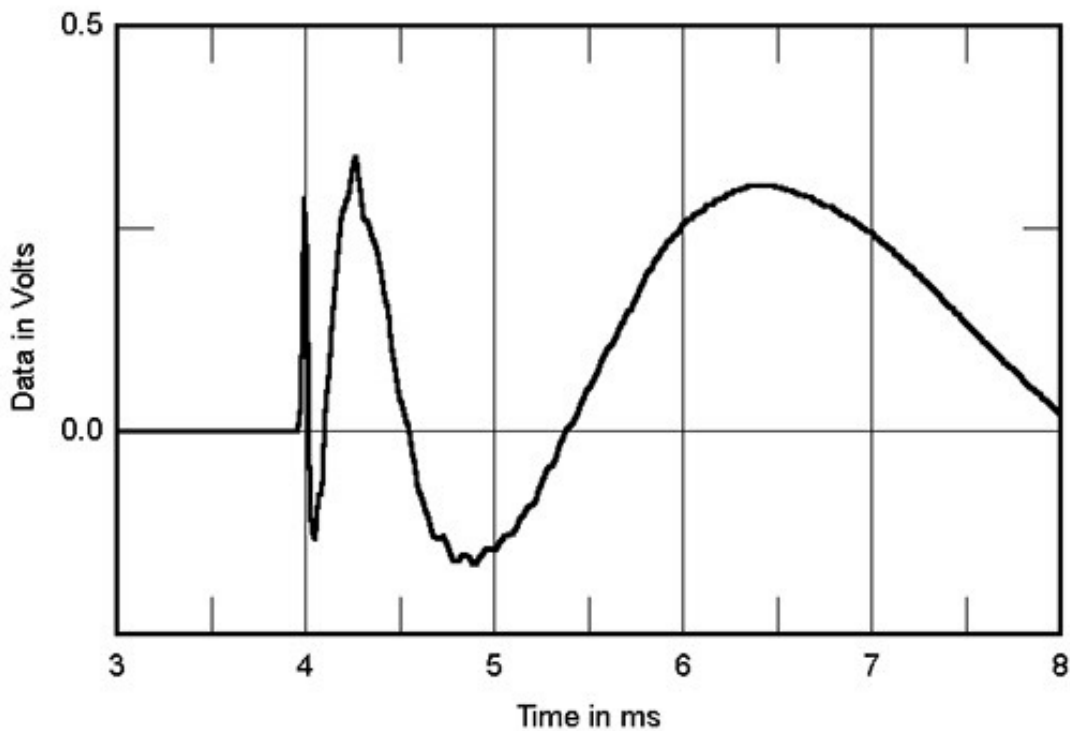


Fig.6 Tad CE1TX, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

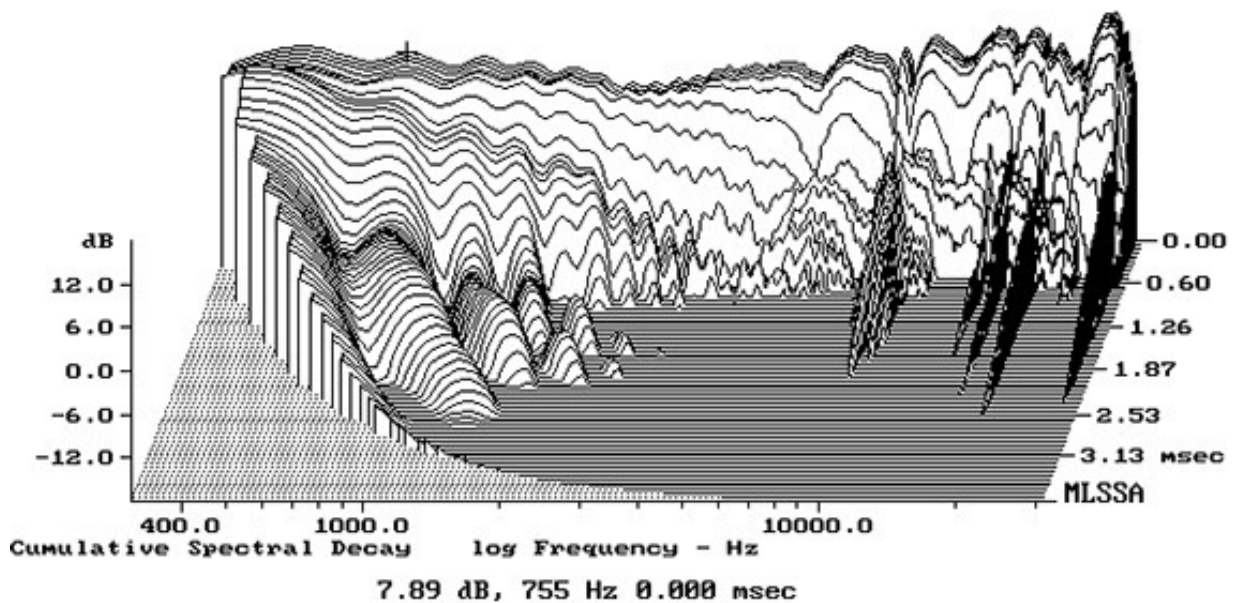


Fig.7 Tad CE1TX, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

In the time domain, the CE1TX's step response on the tweeter axis (fig.6) shows that the tweeter's output arrives first at the microphone, followed by that of the midrange unit, then that of the woofer. All three drivers are connected in positive acoustic polarity, and the decay of each unit's step blends smoothly with the start of that lower in frequency, which suggests optimal crossover implementation. Other than some small ridges of delayed energy in the top octave and some ripples in the upper midrange, the speaker's cumulative spectral-decay ("waterfall") plot (fig.7) is superbly clean. When I reviewed Tad's Compact Reference CR1 standmount, which employed a similar array of drive units, in January 2012, I was impressed both by its sound quality and by its measured behavior. I wait to read what Herb Reichert thought about the Tad CE1TX's sound quality but, as with the original CR1, this loudspeaker's measured performance is superb. —**John Atkinson**

Footnote 1: EPDR is the resistive load that gives rise to the same peak dissipation in an amplifier's output devices as the loudspeaker. See "Audio Power Amplifiers for Loudspeaker Loads," JAES, Vol.42 No.9, September 1994, and [stereophile.com/reference/707heavy/index.html](http://stereophile.com/reference/707heavy/index.html).