

Dynaudio Special Twenty-Five loudspeaker

John Atkinson, June, 2005

Not every interesting audio component gets a full review in *Stereophile*. Many more products are covered in Sam Tellig's, [Art Dudley's](#), Michael Fremer's, [Kal Rubinson's](#), and [John Marks'](#) regular columns than I have the space to publish measurements for. However, I do ask for samples of products that I feel deserve to be measured, particularly when our original coverage raised more questions than it answered.



Such was the case with Dynaudio's Special Twenty-Five loudspeaker, released in 2002 to celebrate the Danish manufacturer's 25th anniversary. A fairly large, stand-mounted, two-way design, the Twenty-Five costs \$5200/pair. The speaker's tweeter is Dynaudio's superb Esotar 2 1.1" soft-dome unit, also used in Dynaudio's Confidence C4 speaker, which I [enthusiastically reviewed in March 2003](#). The crossover is said to be first-order in nature, and the 8" plastic-cone woofer is reflex-loaded with a large flared port on the Twenty-Five's rear panel to give a claimed bass extension of -3dB at 35Hz.

The Twenty-Five was covered (briefly) by John Marks in his January 2003 ["The Fifth Element"](#) column. "How do they sound?" asked JM. "Fabulous," JM answered. "No excuses needed on organ music, or on Brahms' *Ein deutsches Requiem*. Female vocals are just beguiling, string quartets riveting."

That's pretty much all he wrote. The controversy arose when it came time to compile the magazine's "Recommended Components." In what class should the Special Twenty-Five be rated? The fact that the speaker's low frequencies don't extend down to 20Hz rule out a full-range recommendation, but should it go in Class A (Restricted Extreme LF), which is what JM's enthusiastic encomium suggested, or in Class B (Restricted LF), which is what common sense and my own auditioning at that time suggested?

Class B is what I decided on, which is where the speaker has resided since the April 2003 listing—but not without complaints from readers, who felt it was better than some speakers that we rated Class A, or that it had more bass extension than its specification suggested. John Marks went online to discuss the matter, writing in November 2003 on the [Audio Asylum](#) that he did "have twinges when I have to give a great product like the Dynaudio 25th Anniversary speaker a Class B rating, because it in fact is not the best in its class that can be achieved regardless of cost." He concluded that his admiration for the Dynaudio Twenty-Five "remains intense. Audition it if you can. It is a wonderful speaker and I can easily envision it being the 'final speaker' for many people."

I promised that I would resolve these issues by auditioning the speaker in my own listening room and producing a full set of measurements. Accordingly, JM sent me the pair of Special Twenty-Fives he had written about, serial numbers 095 and 096, which are finished in a beautiful-looking blonde birch veneer. I've used the speakers at infrequent intervals since January 2004; here, finally, are my own feelings.

Sound

The Special Twenty-Fives were used on 24" Celestion stands, the central pillars of which were filled with a mix of lead shot and dry sand. The stands put the tweeters at my ear level.

I used the speakers with their ports open, the balance sounding too lean in my room with the ports blocked. I tried very hard to get a reasonable bass balance with the speakers well away from room boundaries, in the positions where the MartinLogan Montages had worked best, but even though the low bass was extended (see fig.7 in the measurements section), it was hard to get sufficient midbass weight without some boundary reinforcement. I therefore moved the speakers back a little and closer to the sidewalls, which gave the optimal integration through the bass without smearing the Dynaudio's low-frequency definition, which was excellent for a reflex design.

The Twenty-Five's bass was full and well-extended, even the 25Hz warble tone on [Editor's Choice](#) (CD, Stereophile STPH016-2) being clearly audible. The 20Hz tone was missing in action; even so, I never felt music to be deficient in low frequencies. The Fender bass on [Editor's Choice](#) had terrific weight, considering the speaker's relatively small size. Likewise, orchestral double bass sounded rich and full.

"Smooth, smooth, smooth," say my listening notes, and from the first note of the first recording I played on the Special Twenty-Fives to the last note of the final CD, the impression persisted of a grain-free ease to the speaker's midrange and highs. Female vocals were indeed "beguiling," as was classical piano. I am currently working on the editing of a performance by Robert Silverman of Beethoven's *Diabelli Variations*, which I recorded in August 2004 in Utah using Ray Kimber's IsoMike baffling with matched Neumann M150 omni mikes. (This recording is scheduled to be released on CD in early summer 2005, with a surround SACD to be available sometime later.) With the master files played back on the Twenty-Fives, there was a palpable quality to the sound of Bob's Steinway that sounded deliciously real. Naturally recorded piano tends to highlight aberrations at the top of the woofer's passband in a two-way design, yet the Dynaudio's drive-units sounded well integrated in this region, without some notes jumping out at the listener. And again, the Dynaudio's low frequencies impressed with their weight and definition when Bob pounded away with his left hand in the Variation 32 fugue.



Stereo imaging was precise and stable, with a well-defined soundstage. Soundstage depth was less well developed at high frequencies than in the midrange. In fact, the upper midrange had a forward balance. And while the treble didn't sound bright per se, there was more high-frequency

energy present than is called for by strict neutrality. While the differences between Billy Drummond's cymbals on "The Mooche" (from Jerome Harris' *Rendezvous*, Stereophile STPH013-2) were not obscured, they stood a little forward of the speaker plane. This was not in any way a problem with naturally balanced recordings—the Mozart flute-quartet and Brahms horn-trio tracks on *Editor's Choice*, for example. But on the more closely miked Mozart piano-quartet track on that CD, the violin and viola sounded a little wiry.

I can imagine this character being exacerbated by amplifiers and CD players that are themselves too hot in the treble, though the recessed low treble of many MC phono cartridges will tend to balance this characteristic of the Special Twenty-Five's balance. I did wonder if the forward treble would be alleviated by break-in, but while it seemed to diminish slightly over time, it didn't disappear. I found that listening slightly off the tweeter axis helped; with the speakers close to the sidewalls to reinforce the lows, I toed them in so that their tweeter axes crossed a foot or so ahead of my listening position. It is also important to note that this balance was not accompanied by any hardness or other fatiguing factor. The Special Twenty-Five's sound remained clean, even at high playback levels.

Summing up

Overall, the Dynaudio Special Twenty-Five is a superb loudspeaker, with a smooth, grain-free treble, a natural-sounding midrange, excellent soundstaging, and extended low frequencies when given a little bit of boundary reinforcement. However, its treble balance is on the forward side. In too live a room or with the wrong source and amplification *components*, that forward quality might well morph into brightness. No matter how much I occasionally wanted to give the Twenty-Five *Stereophile's* ultimate accolade on a specific piece of music where it shone new light, our Class B rating in "Recommended Components" was fundamentally correct, I believe.

Sidebar 1: Specifications

Description: Two-way, reflex-loaded, stand-mounted loudspeaker. Drive-units: 1.1" soft-dome tweeter, 8" plastic-cone woofer. Crossover frequency: 2.4kHz, 1st-order slopes. Frequency response: not specified. Nominal Impedance: 4 ohms. Sensitivity: 88dB/2.83V/m.

Dimensions: 8.75" (222mm) W x 16.7" (423mm) H x 13.75" (349mm) D. Weight: 28.6 lbs (13 kg).

Serial numbers of samples reviewed: 095, 096.

Finishes: blonde birch veneer, rosewood.

Price: \$5200/pair. Approximate number of dealers: 32.

Manufacturer: Dynaudio A/S Sverigesvej 15, DK-8660 Skanderborg, Denmark. Tel: (45) 86-523-411. Fax: (45) 86-523-116. US distributor: Dynaudio North America, 1144 Tower Lane, Bensenville, IL 60106. Tel: (630) 238-4200. Fax: (630) 238-0112. Web: www.dynaudiouusa.com.

Sidebar 2: System Details

Equipment used included almost all the amplification and source components I have reviewed in the past 18 months, but the primary review system consisted of [Mark Levinson No.31.5](#) CD transport and [No.30.6](#) D/A processor, a [Levinson No.380S](#) preamplifier, and [No.33H](#) monoblocks, hooked up with [AudioQuest](#) and Madrigal cables. (Unlike JM, who dismissed them as "Euro-Nanny" terminals, I have no philosophical problem with the speaker's shrouded WBT connectors.) I also played back AIF files of my own hi-rez recordings on my Apple PowerBook, hooked up to the Levinson stack via a Metric Halo MIO 2882 FireWire interface

Sidebar 3: Measurements

I estimated the Special Twenty-Five's voltage sensitivity at 89.3dB(B)/2.83V/m, 1dB higher than the specified 88dB. The speaker is specified as a 4 ohm load, but as its impedance plot (fig.1) reveals, it drops to this figure for only a small range of frequencies in the lower midrange. The impedance actually stays above 6 ohms for most of the audioband, which, in conjunction with the generally modest electrical phase angle and the higher-than-average sensitivity, suggests that the Special Twenty-Five is a fairly easy amplifier load.

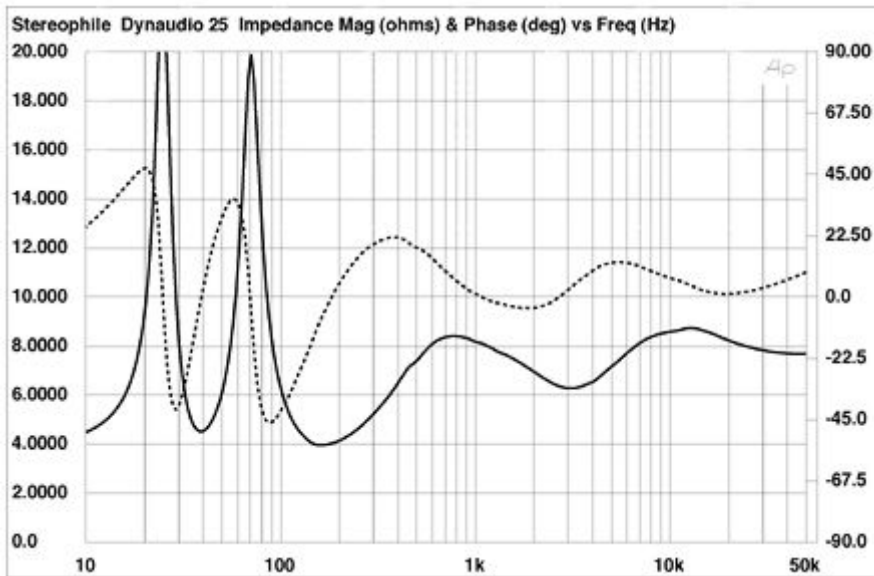


Fig.1 Dynaudio Special Twenty-Five, reflex electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

This plot was taken with the reflex port open—the saddle centered at 39Hz in the magnitude plot in this graph indicates the port tuning frequency. Inserting the supplied foam plug results in a single impedance peak in the bass at 63.5Hz (fig.2), implying modest bass extension in this mode.

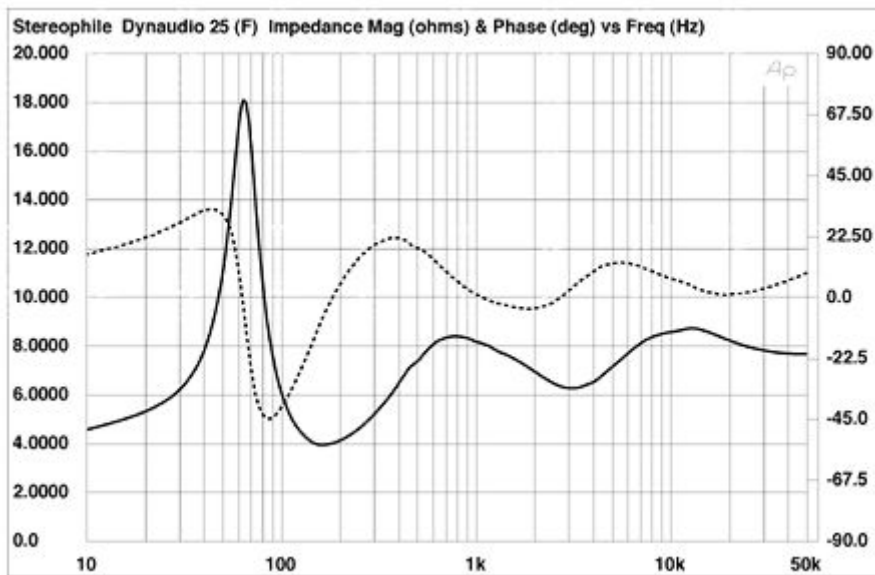


Fig.2 Dynaudio Special Twenty-Five, sealed-box electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

Although it cannot be seen at the scale this graph is printed, there is a very slight wrinkle between 400Hz and 500Hz in both the amplitude and phase plots. Investigating the cabinet's vibrational behavior with a simple accelerometer revealed a resonance mode present at 473Hz on the side panel (fig.3). Though this mode is quite high in level, it is also high enough in frequency and decays sufficiently quickly that it should have a minimal effect on the speaker's sound quality. A mode at 240Hz could be found on the top panel, but this was well down in level.

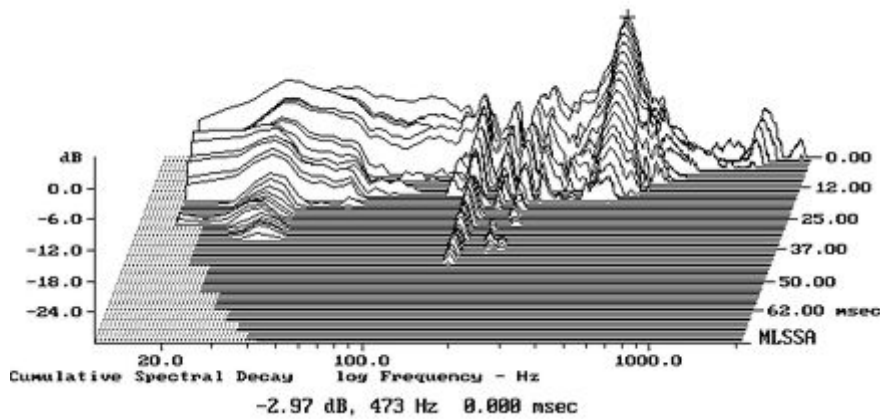


Fig.3 Dynaudio Special Twenty-Five, cumulative spectral-decay plot calculated from the output of an accelerometer fastened to the center of the cabinet's side panel (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

Turning to the frequency domain, the rather complicated plots in fig.4 show: the overall response on the tweeter axis, averaged over a 30° horizontal angle (black trace), spliced to the complex sum of the nearfield woofer and port outputs (also black); the nearfield woofer response with the port open (blue); the nearfield port response (green); and the nearfield woofer response with the port blocked by foam (red).

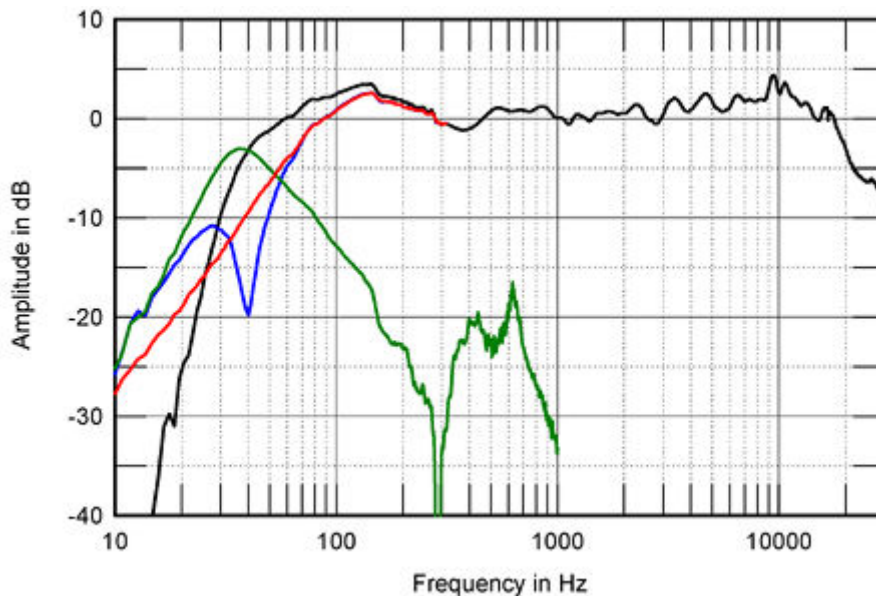


Fig.4 Dynaudio Special Twenty-Five, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with the complex sum of the nearfield woofer (blue) and port (green) responses, taking into account acoustic phase and distance from the nominal farfield point, plotted below 300Hz. Red trace shows the nearfield woofer response with the port blocked by the foam plug.

Comparing the red and black traces, it can be seen that blocking the port drops the speaker's midbass by just above 6dB at 42Hz, the lowest note of the four-string double bass and bass guitar. This will compensate quite effectively for the boom that would otherwise result if the speaker has to be used very close to the wall behind it. The minimum-motion notch in the woofer's output when reflex-loaded occurs at 39Hz, the frequency predicted by the impedance plot, and the port's output peaks between 30 and 50Hz. A notch at 300Hz in the port response indicates some kind of anti-resonance at that frequency, and while there are a couple of peaks apparent at higher frequencies, these are both well down in level.

Moving higher in frequency, the Special Twenty-Five's overall response looks impressively flat, with little evidence of the 2.4kHz crossover point. However, a slight excess of energy can be seen in the upper midrange and the tweeter appears to be balanced around 2dB too high in level. Both of these correlate with the slightly bright tonal balance I noted in my auditioning. Interestingly, while my measured response correlates in some respects with that published by *Ultimate AV* in their October 2004 issue, that magazine's samples had a slightly less hot treble. However, in his review notes, Joel Brinkley commented on a balance that was too forward in the upper midrange, which echoes my own feeling.

The Dynaudio's lateral dispersion is shown in fig.5. There is only a slight sign of the 8" woofer suffering from the expected limited dispersion at the top of its passband, and though there is an excess of off-axis energy apparent just above the crossover point, this will compensate for a small suckout at the same frequency in the Twenty-Five's on-axis output. The tweeter's response drops rapidly to the sides above 10kHz, which will perhaps make the speaker sound somewhat lifeless in very large rooms. More likely, however, it will leave the mid-treble a little emphasized. In the vertical plane (fig.6), a big suckout rapidly develops in the crossover region as the microphone moves above the tweeter axis. Despite its bulk, the Dynaudio needs fairly high stands to ensure that the listener's ears remain on or just below the tweeter axis.

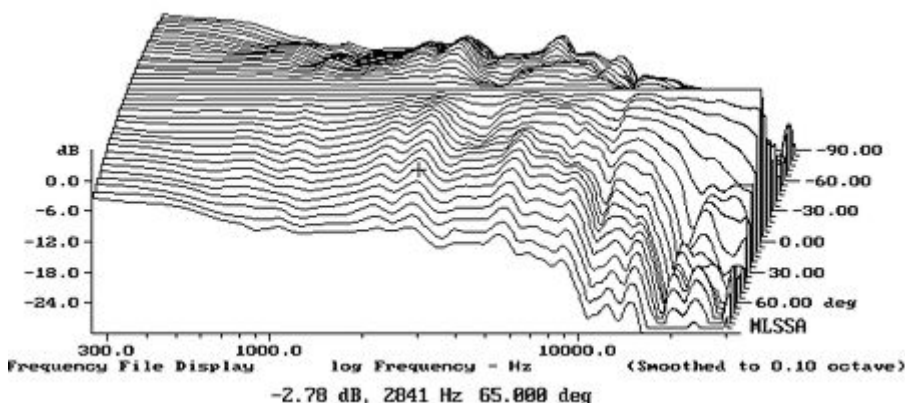


Fig.5 Dynaudio Special Twenty-Five, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off-axis, reference response, differences in response 5–90° off-axis.

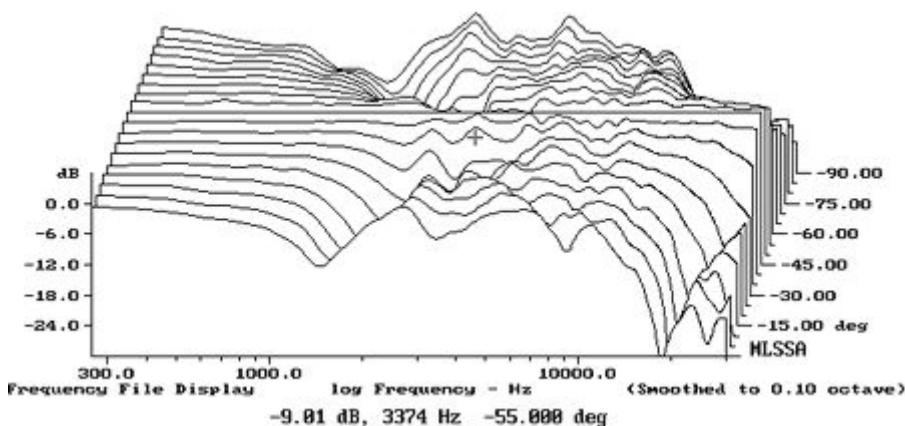


Fig.6 Dynaudio Special Twenty-Five, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.

Fig.7 shows the Dynaudio Special Twenty-Five's spatially averaged response at the listening position in my room, with the speakers in the preliminary, more free-space locations. Though there is a creditable amount of bass evident, down to the 25Hz 1/3-octave band, the 50Hz and 63Hz bands are a little suppressed and the entire LF region is shelved-down slightly compared

with the upper midrange and treble. The overall response trend above the region dominated by room acoustics (below 400Hz or so) is smooth, but tilted-up between 1kHz and 10kHz, rising by 3dB in that region.

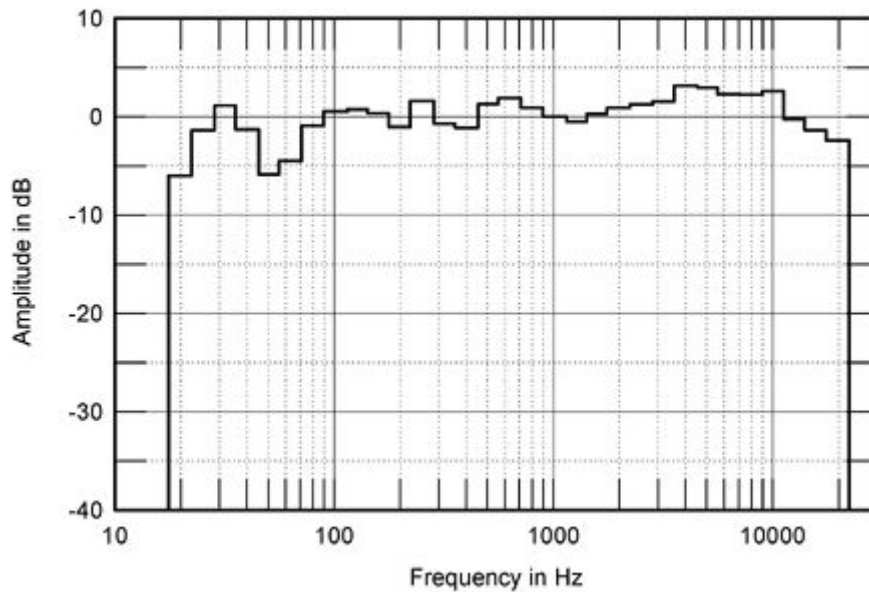


Fig.7 Dynaudio Special Twenty-Five, spatially averaged, 1/3-octave response in JA's listening room.

In the time domain, the Twenty-Five's step response (fig.8) reveals that, despite the speaker's use of first-order crossover filters, it is not time-coincident, the tweeter's positive-going step arriving at the microphone about 200µs before the woofer's. However, the speaker is *time-coherent*, in that the overshoot of the tweeter's step smoothly blends with the rising edge of the woofer's step, which correlates with the excellent integration between the drive-units on the tweeter axis in the frequency domain. The cumulative spectral-decay plot on the tweeter axis is superb (fig.9), with a very clean initial decay.

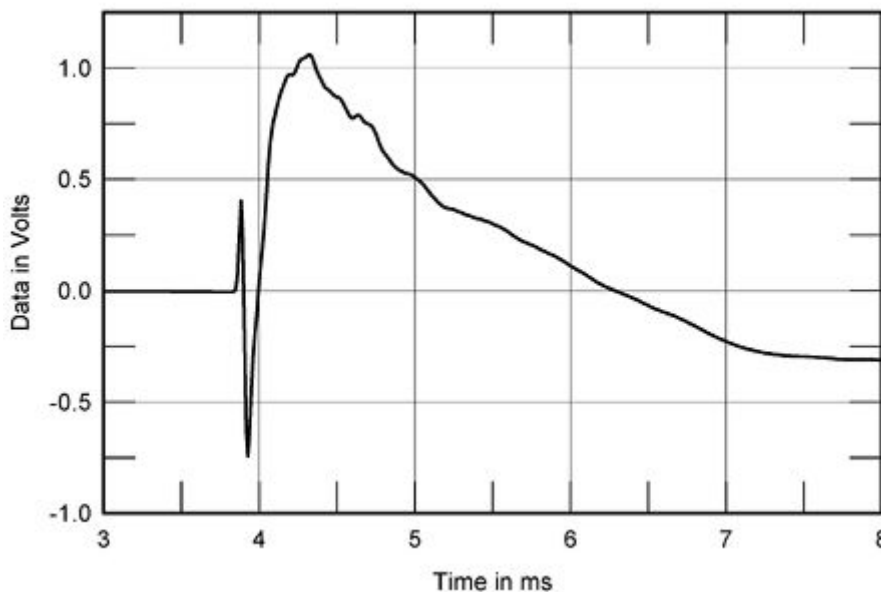


Fig.8 Dynaudio Special Twenty-Five, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

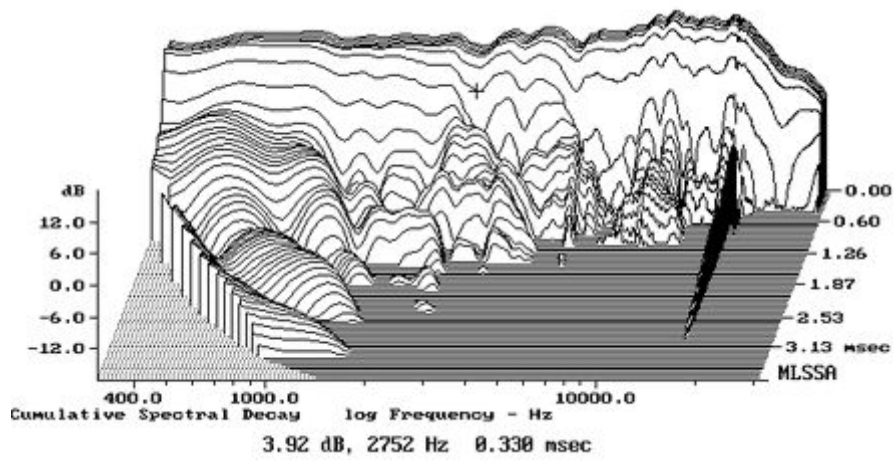


Fig.9 Dynaudio Special Twenty-Five, cumulative spectral-decay plot at 50" (0.15ms risetime).

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