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KEF Reference 201/2 loudspeaker

By Wes Phillips • July, 2008

In the waning days of 2007, I delivered some small audio doohickey to John Atkinson one weekend afternoon. "Come down to the listening room," he said. "I want you to hear something."



I forget now what he played me—a hi-rez recording of Cantus or Attention Screen, I'm fairly certain—but I remember what he played it through: the [KEF Reference 207/2](#) loudspeakers he was reviewing for the February 2008 *Stereophile*. "Holy cow!" I said. "I've always admired KEF speakers, but this is a speaker I could actually be *passionate* about."

"Yes," agreed JA. "They *are* rather well sorted." Which is British understatement for *Ooh-la-la!*

A few weeks later, as several loudspeakers I'd lined up for review failed to ship one after another, our beloved editor had a suggestion. "I have the \$6000/pair KEF Reference 201/2 Signatures in-house, awaiting review. They'd work a treat in your smaller listening room."

"Bring 'em on!" I said. Wouldn't you?

Burning lamps and sparks leap out

The KEF Reference 201/2 is a *big* stand-mounted monitor (16.4" H by 9.8" W by 15.9" D) that weighs 27 lbs. It has a top-firing port and a classic "canoe prow" profile. A KEF Uni-Q coincident tweeter-midrange drive-unit stands proud of the front baffle in a bulgy cowling that extends beyond

the top of the cabinet. Beneath the Uni-Q assembly is a 6.5" low-frequency driver with a powerful motor that controls distortion with two Faraday shorting rings on the voice-coil formers.

The Uni-Q driver is Mark Dodd's variation on the coincident driver originally designed in 1987 by Laurie Fincham. This latest version better aligns the 1" titanium-dome tweeter to its surrounding 6.5" controlled-flare midrange driver, which functions as a waveguide, allowing a much more controlled acoustic wavefront. If you're interested in the details, including reference to Dodd's 2006 AES paper "Optimum Diaphragm and Waveguide Geometry for Coincident Source Drive Units," refer to JA's February review of the Reference 207/2.

The "fully multiway crossover" (which, I gather, means fourth-order) employs selected electrolytic and polypropylene film capacitors, iron-core coils (bass), and air-core coils (higher frequencies). OFC wiring is used, hand-soldered to components.

On the sharp end of the speaker are three pairs of WBT terminations, allowing consumers to triwire (or passively triamp, I suppose) the 201/2s. KEF includes hefty OFC jumpers with bananas and spades so that consumers can use a single set of speaker cables or biwire (which is what I did).

Above the terminals are three gold-plated "switches" (hex-head bolts, actually) that can be removed to alter the "Uni-balance." One, designated LF, is designed to allow the speakers to be placed nearer to boundaries than with the Flat position. I found this somewhat helpful, since my smaller listening room necessitates that—however, I suspect that KEF's claimed 2dB of LF reduction is a tad optimistic.

Two HF switches permit four EQ options: Flat, +0.75dB, -0.75dB, and -1.5dB. Anal-retentive that I am, I kept going back to Flat because that is the *proper* audiophile response, but I really liked the air that +0.75dB gave my best-sounding acoustic recordings. I also liked being able to tone down some of the hot rock recordings being released nowadays, however—but that way lies madness.

KEF sells their own heavy Reference stands, which are 24" high and cost \$500/pair, and to which the 201/2 can be directly bolted. But I had a pair of aggregate-filled 24" Foundation stands in-house, so I didn't audition the KEF stands.

The speakers are shipped with nice-looking protective grilles. Use them for all speaker-moving tasks (the chrome-plated titanium tweeters are protected by a screen, but still). Just don't *listen* to the Reference 201/2s with the grilles in place—they're mufflicious.

One idea sparks another

The Ref 201/2 was a *lot* more demanding of amplifiers than I had thought. My initial thinking had been *Small room, smallish speaker, recommended power minimum of 50Wpc—go for an integrated amp*. The two such amps I had to hand were the 100Wpc [Portal Panache](#) and the 60Wpc [Ayre AX-7e](#). With both, the sound was quite good: natural, rich in the bottom, and extremely clear—but still no sparks. Then I installed my [Musical Fidelity Nu-Vista 300](#) power amp and kicked the KEFs in the arse with some welly. *Zzzzzzt!*

I'm not going to say you need to drop 200–300W into the system, but don't skimp on a power amp with the KEF. It hungers for juice.

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Waiting for the spark from heaven to fall

Robert Spano's new recording of Brahms's *Ein deutsches Requiem* with the Atlanta Symphony and Chorus (CD, Telarc CD-80701) would be a daunting challenge for almost any stand-mounted loudspeaker, but, goosed by the Nu-Vista, the KEF Reference 201/2s simply *nailed* it. The huge chorus, the tonal colors of the orchestra, the sheer scale of the work—I've heard "reference" floorstanders that didn't deliver as much of the sound as the KEFs did.

The KEF was ready to deliver a lot more sound than my 9' by 15' by 7.5' listening room could handle—room compression factored in long before I achieved the Ref 201/2's rated upper limit of 110dB. No, I don't listen at those levels all the time, but when you take a car for a test drive at the track, you need to discover where it will spin out. The Ref 201/2 played *loud* and sounded good doing it.

It also had impressive bass for a stand-mounted monitor. It's true that it isn't perzackly small, but it's mighty. The taut basses and lower brass of *Selig sind die Toten* weren't simply deep, they were *solid*.

From the sublime to the sublimely ridiculous: I then listened to "Tuba Chant," from Michel Codard's *Sous les Voûtes, Le Serpent*.... (CD, M•A Recordings M048), which juxtaposes tuba with "percussion" that sound like the largest Tibetan prayer bowls I've ever heard—all recorded in the immensely reverberant space of Monasterio de la Santa Espina in Valladolid, Spain. The KEF 201/2s gave great physicality to the tuba, but the solidity that they imparted to the monastery's acoustic was even more impressive. The 201/2s could re-create a recording venue with uncanny detail.

The Reference 201/2s were also superb at creating the ungodly racket of a multi-horn front line, as evidenced by Roomful of Blues' eponymous first album (CD, Varrick VR035), which puts Duke Robillard's voice and guitar in front of an alto, tenor, and baritone sax, not to mention rollicking piano, bass, and drums. On "Give It Up," Preston Hubbard and John Rossi lay down a backbeat that baritone saxophonist Doug James nails to the floor with a repetitive series of *honk honks* as first alto saxophonist Richard Lataille, then tenor player Greg Piccolo, lay chorus after chorus on top. The KEFs gave James' bari convincing solidity and grit, while reveling in the timbral differences between Piccolo and Lataille—and it all came at me with the wham of an oncoming freight train.

Listening to a full-throttle sax section through the Ref 201/2s, I realized that the electric guitar wasn't as essential to early rock'n'roll's raucous roar as is commonly thought. Nothing says *do the dirty rawk* like a barrelhouse sax.

From a little spark may burst a flame

The speaker the KEF Reference 201/2 Signature most reminded me of was the equally ambitious [Dynaudio Confidence C1](#) (\$7000/pair), which I reviewed in the November 2007 issue (Vol.30 No.11). Since then, however, reviewing reality had set in, and the C1s had moved along to their next lucky reviewer. What I did still have on hand, however, was the [Usher Audio Technology Be-718](#) (\$2795/pair) I'd compared so favorably to the Dynaudio in the May 2008 issue (Vol.31 No.5).

You may think it unfair to compare a loudspeaker costing \$6k/pair to one costing just less than half that, but only if you hadn't heard the Usher. Many speakers at twice the price would quake in their boots at the thought of being held to that standard. Indeed, the Be-718 did justice to the *German Requiem's* heft and dynamic sweep, although the KEF had more top-end air—especially with both HF screw caps installed (I *did* say I liked that on really well-recorded acoustic music).

The Ref 201/2 also gave more body to the moving rumble of the low strings and brass. I've noticed this effect at concerts: You don't so much hear low-end motion as *feel* it, and probably because it's a feeling and not a thought, the music is the more powerful for it. With the best-recorded sources, the KEF Reference 201/2 opened the portal for that magic.

Playing "Tuba Chant," the two speakers were far more alike than different. The Be-718s gave a very capable report of Valladolid's acoustic, and also the ghost-like tones of the gongs or Tibetan bowls or whatever it is Mark Nauseef is playing. On "A Black Dust Cloud, and Stars Embedded in Gaseous Nebulosities (For Carl Sagan)," however, the KEFs had more *jump!* Factor in some of Nauseef's struck cymbals. The Ushers did a superb job of conveying the timbre of the brass, and also the decay of the tones in the acoustic. What the KEF handled better—and to a startling degree—was conveying those transients' leap into existence. The 201/2 went from dead-black silence to full-tilt boogie with absolutely no hesitation or slop.

You think that's unimportant? Perhaps I did too, before I experienced it.

"Give It Up" also surprised me. The Usher gave Richard Lataille's alto sax a more nasal coloration than did the KEF. The Usher was impressive in its delivery of that stomping back beat and rhythm section, but the KEF simply rocked it a tad harder. Was that due to a superior ability to resolve incredibly tiny dynamic shifts, or was it part and parcel of the 201/2's ability to leap into action, or are they the same thing?

Don't know, and not sure I care. It was impressive and addictive, I'll tell you that.

Kindled by unexpected sparks

In addition to being drop-dead gorgeous, the KEF 201/2 is phenomenally well built. Its curved cabinet is sexy enough that you just might find yourself stroking its flank—if not surreptitiously patting its fanny. Fit'n'finish are exceptional.

And the 201/2 is properly thought out, as well. I heard no problems from that coincidentally mounted tweeter and midrange, and I was listening for them. There was no "cupped hands" coloration, and the handoff from midrange to tweeter was seamless. Then there are the EQ "switches," the effects of which were subtle but effective. Matching the 201/2 to your system, room, and taste should be simpler than with most speakers.

As for the 201/2's sound: *Loved it!* That's pretty much it.

I don't have any caveats, other than suggesting that it's hard to have too much power for the KEFs—they want, need, and require juice, and lots of it. I suppose some will criticize the Reference

201/2 Signature for its price of \$6000/pair. That is a lot of money for a stand-mounted monitor, but its performance suggests that KEF put a lot into the 201/2. What that's worth to you would be impossible for me to predict.

What I also couldn't have anticipated was how much, ultimately, I responded to the Reference 201/2 Signature. It's a truism that no transducer is perfect, but the 201/2 Signature is an absolute gem—if not flawless, then damn close.

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Specifications

Sidebar 1: Specifications

Description: Three-way, reflex-loaded, magnetically shielded, stand-mounted loudspeaker. Drive-units: Uni-Q coincident 1" (25mm) titanium-dome tweeter and 6.5" (165mm) polypropylene copolymer-cone midrange unit; 6.5" (1650mm) fiber-reinforced paper-cone woofer. Crossover frequencies: 145Hz, 2.5kHz; 24dB/octave acoustic slopes. Frequency response: 55Hz–60kHz, ± 3 dB, 15° off horizontal axis. Bass extension: 44Hz, –6dB. Sensitivity: 86dB/2.83V/m. Nominal impedance: 8 ohms (4.2 ohms minimum). Recommended power: 50–150Wpc. Maximum output level: 110dB.

Dimensions: 16.4" (420mm) H by 9.8" (250mm) W by 15.9" (405mm) D. Weight: 27 lbs (12.3kg).

Finishes: High-gloss American Walnut, Cherry, Satin Sycamore veneers; piano black.

Serial Numbers Of Units Reviewed: 507716 L&R.

Price: \$6000/pair. Matching stands cost \$500/pair. Approximate number of dealers: 32.

Manufacturer: KEF Audio (UK), Eccleston Road, Tovil, Maidstone, Kent ME15 6QP, England, UK.

Web: www.kef.com. Tel: (44) (0)622-750653. US distributor: KEF America, Inc., 10 Timber Lane, Marlboro, NJ 07746. Tel: (732) 683-2356. Web: www.kefamerica.com.

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KEF Reference 201/2 loudspeaker:

Associated Equipment

Sidebar 2: Associated Equipment

Digital Source: [Ayre C-5xe](#) universal player; [McIntosh MS750](#) music server; Bel Canto e.One CD2 CD player & [e.One DAC3](#) D/A converter.

Preamplifiers: [Ayre K-1xe](#), [Conrad-Johnson ACT2](#).

Power Amplifiers: Ayre V5, [Musical Fidelity Nu-Vista 300](#).

Integrated Amplifiers: [Ayre AX-7e](#), [Portal Panache](#).

Loudspeakers: A href="http://www.stereophile.com/standloudspeakers/508ush">Usher Be-718.

Cables: Digital: Stereovox XV2. Interconnect: Shunyata Research Aries & Antares, Stereovox Colibri. Speaker: Shunyata Research Lyra, Stereovox Firebird.

Accessories: Ayre L-5xe line filter, Furutech eTP-609 distribution box, [APC APCS15](#) AC line conditioner; Furutech RDP panels, RealTraps Mini & [Mondo Traps](#).—**Wes Phillips**

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Measurements

Sidebar 3: Measurements

The KEF Reference 201/2 is a little below average in sensitivity. My estimate of the speaker's voltage sensitivity on its tweeter axis was 85.5dB(B)/2.83V/m, slightly but inconsequentially less than the specified 86dB. Although its minimum impedance is a moderate 4.2 ohms, as specified, the electrical phase angle is occasionally high, which will make the speaker harder to drive than might be thought from a first glance at its impedance plot (fig.1). The combination of 5.5 ohms and -42° capacitive phase angle at 107Hz, a frequency where music can have high energy, mandates that an amplifier be used that is capable of driving low impedances without breaking a sweat.

The traces in fig.1 are smooth, lacking the small discontinuities that would hint at the existence of panel resonances of various kinds. Investigating the cabinet's vibrational behavior with an accelerometer revealed that the gracefully curved enclosure was commendably inert. The only resonant modes I could find lay at 400 and 670Hz, but were very low in level (fig.2).

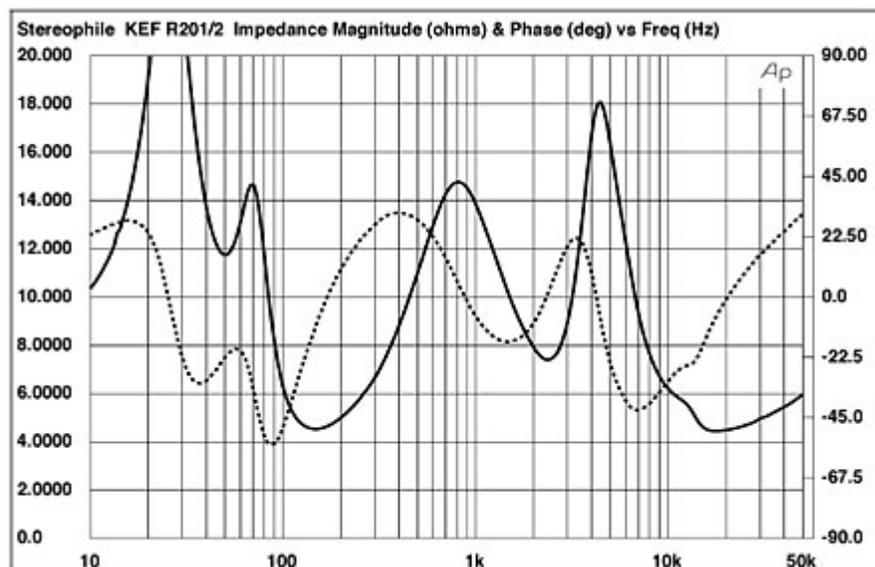


Fig.1 KEF Reference 201/2, electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

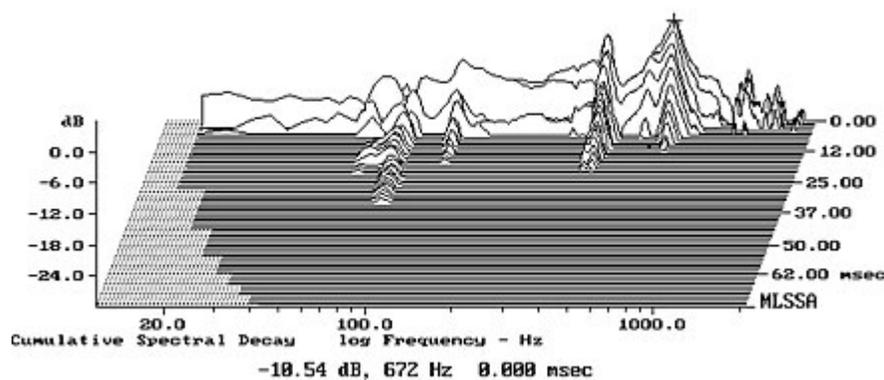


Fig.2 KEF Reference 201/2, cumulative spectral-decay plot calculated from the output of an accelerometer fastened to the center of the sidewall (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

The saddle at 50Hz in the impedance-magnitude trace suggests that this is the tuning frequency of the top-firing port behind the coaxial driver's subenclosure, though the height of the lower-frequency impedance peak implies a rather overdamped alignment. This is confirmed by the nearfield responses of the port (fig.3, red trace) and woofer (blue). There is only a suggestion of the usual minimum-motion notch at 50Hz in the woofer's output, while the port's output is both slightly suppressed and covers a broader bandpass than usual. The woofer's response appears to hump up in the upper bass; this is mainly an artifact of the nearfield measurement technique. The crossover to the midrange unit (fig.2, green trace) looks asymmetrical, the woofer rolling off with a fairly gentle second-order slope, while the midrange comes in with a fourth-order slope. Both units are well behaved both in and out of their passbands. The upper-frequency crossover occurs at around 2.7kHz and appears to be symmetrical fourth-order. The tweeter is flat, other than a peak that starts just below the limit of the graph at 30kHz, this presumably due to the unit's primary dome resonance.

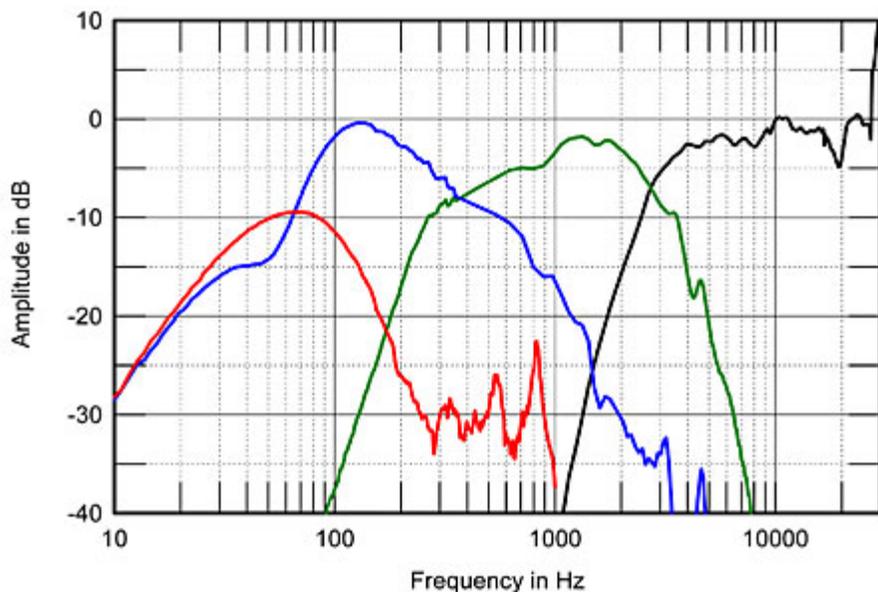


Fig.3 KEF Reference 201/2, acoustic crossover on tweeter axis at 50", corrected for microphone response, with the nearfield responses of the midrange unit (green), woofer (blue), and port (red), plotted in the ratios of the square roots of their radiating areas below 350Hz, 350Hz, and 1kHz, respectively.

Fig.4 shows how these individual drive-unit responses sum in the farfield, averaged across a 30° horizontal window centered on the tweeter axis. The bass rolls off a little earlier than the port tuning frequency of 50Hz might suggest, and there is a slight boost in the top octave. Otherwise, the KEF 201/2 offers an extraordinarily flat anechoic response, basically meeting tight ± 1 dB limits from the upper bass through the high treble. This response was taken with the gold-plated tuning caps set to Flat. Peculiarly, between the maximum and minimum settings I found only a 0.3dB difference at 10kHz.

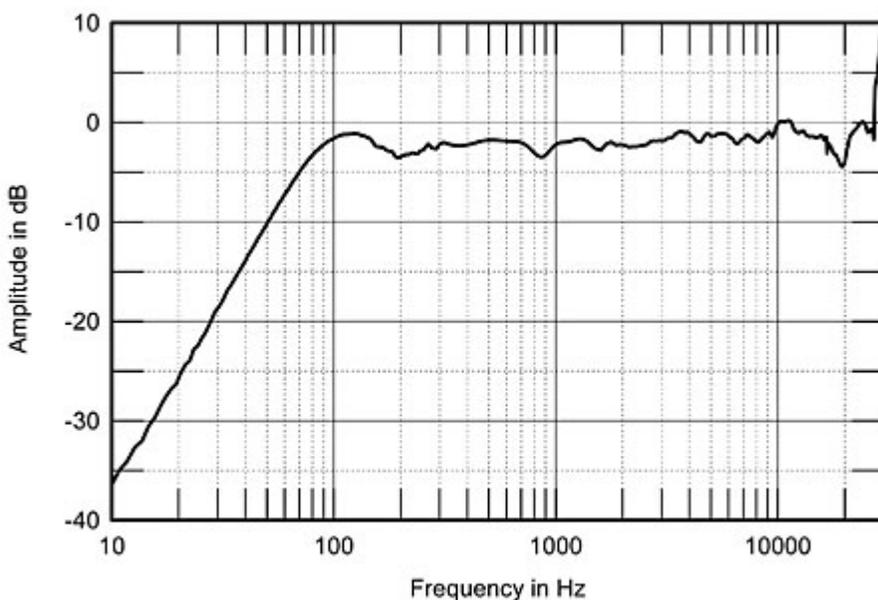


Fig.4 KEF Reference 201/2, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with the complex sum of the nearfield responses plotted below 300Hz.

Not only was the KEF's on-axis response flat, its dispersion was textbook in the smoothness and evenness of the contour lines in its plot of horizontal radiation pattern (fig.5). This smoothness and evenness always correlates with stable, accurate stereo imaging, and while the tweeter gets more directional above 10kHz, as expected, there is only the slightest hint of an off-axis flare in the bottom octave of its passband and no off-axis irregularities. This generation of the KEF's Uni-Q drive-unit is very much better behaved off axis than its predecessors. The speaker demonstrates the same wide dispersion in the vertical plane (fig.6); as a result, it will not be fussy about the listener having to sit exactly on axis.

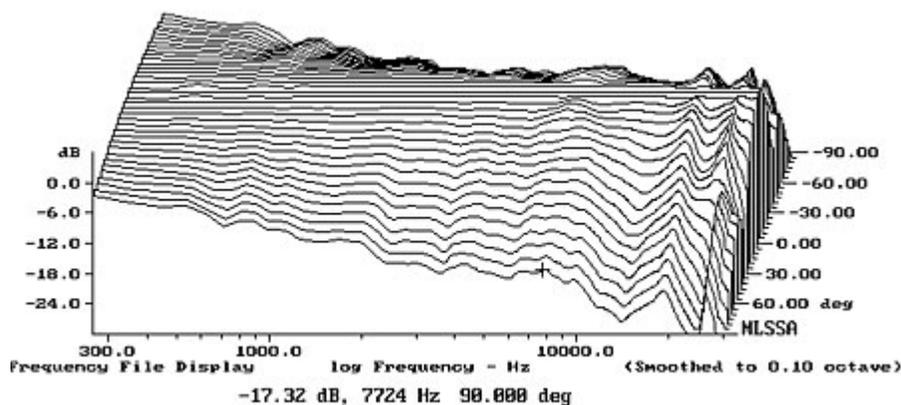


Fig.5 KEF Reference 201/2, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off axis, reference response, differences in response 5–90° off axis.

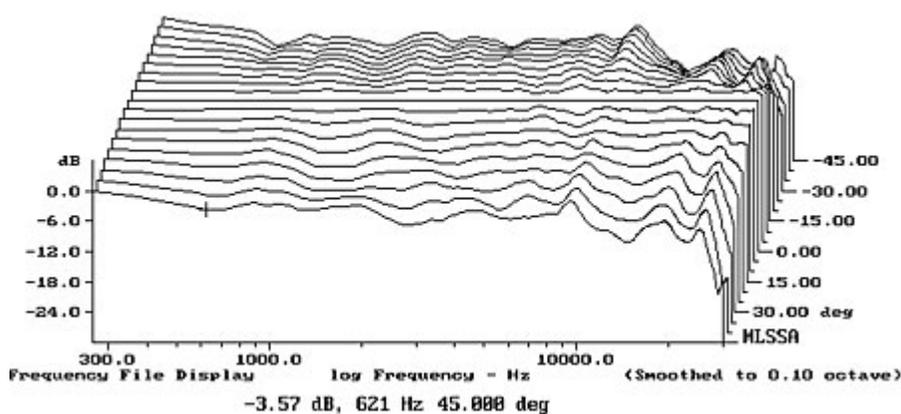


Fig.6 KEF Reference 201/2, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.

Fig.7 is the KEF's spatially averaged response taken in WP's smaller listening room. (I took 40 responses for each speaker individually in a grid 36" wide by 18" high and centered on the position of WP's ears in his listening seat.) The speakers' bass was set for boundary loading with the appropriate screw cap removed, and the treble was set to its maximum, which is how the speakers were auditioned. The hump between 60 and 120Hz and the depression an octave higher are room-acoustics effects that have not been eliminated by the spatial averaging. The low bass rolls off prematurely, and there is a slight excess of midrange energy, but other than those features, the 201/2's in-room behavior is, again, extraordinarily flat. This is one neutrally balanced speaker.

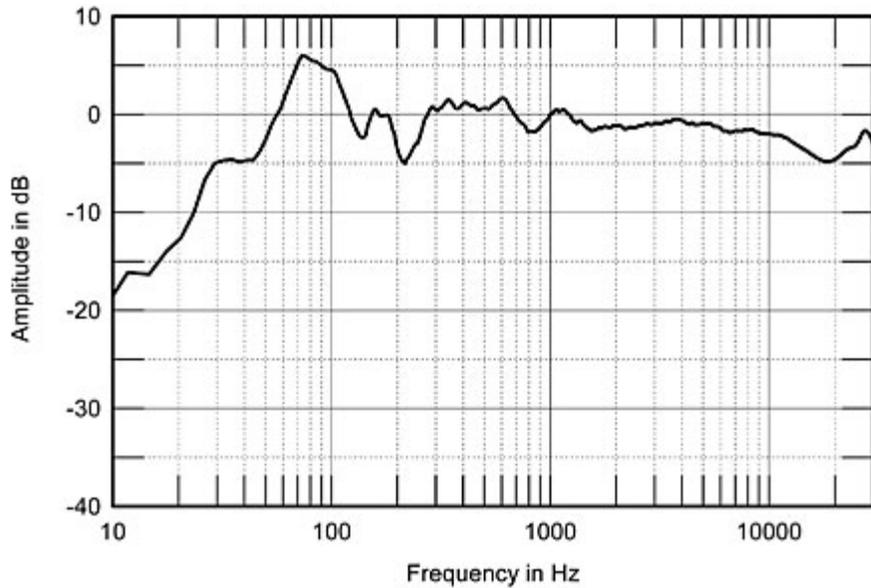


Fig.7 KEF Reference 201/2, spatially averaged, 1/6-octave response in WP's smaller listening room.

In the time domain, the KEF's step response on its tweeter axis (fig.8) reveals that both the tweeter and midrange units are connected in inverted acoustic polarity, the woofer in positive polarity. When this is combined with the phase shift due to the crossover filters, the result is a smooth, even summed output through each of the two crossover regions. You can also see that the step response of each driver smoothly blends into that of the next lower in frequency. The 201/2's cumulative spectral-decay plot on the tweeter axis (fig.9) is superbly clean and free from any resonant effects.

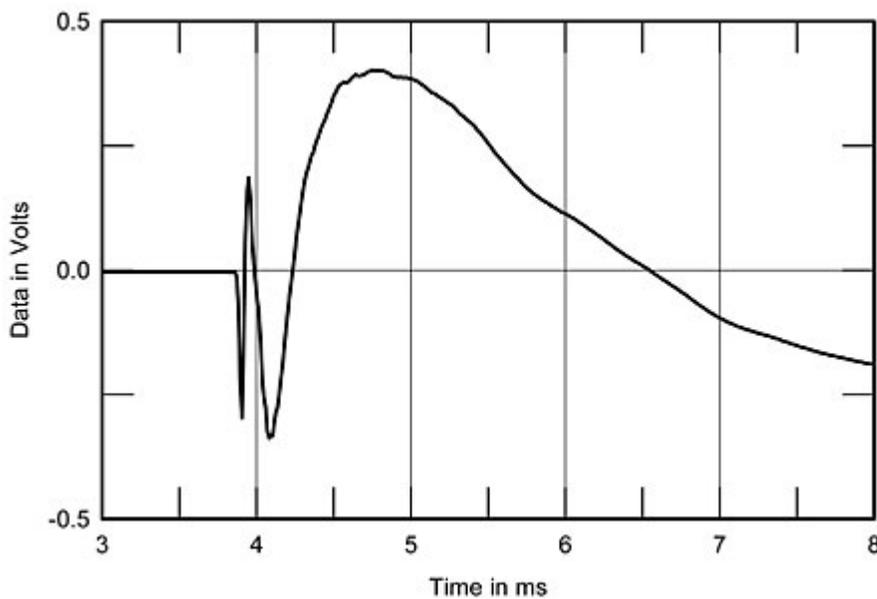


Fig.8 KEF Reference 201/2, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

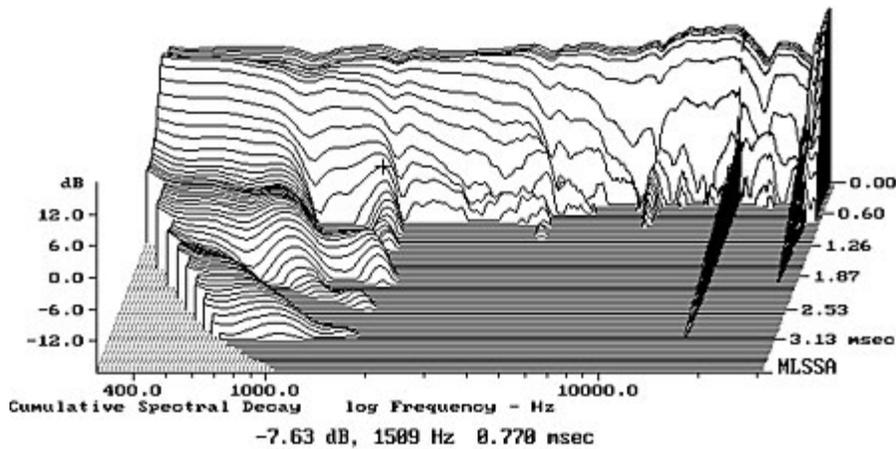


Fig.9 KEF Reference 201/2, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

The KEF Reference 201/2 is one of the best-measuring loudspeakers I have had the pleasure to test in my lab. As WP found, a pair of them will offer a superbly transparent, neutral, grain-free window on the recorded acoustic.—**John Atkinson**

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