

At last, the long-promised new 'super' electrostatic. Quad's first new speaker in more than 25 years promises to improve on the classic ESL-63

by KEN KESSLER

QUAD 989

Few products are of such great consequence that reviewers both covet and fear them. Imagine the impact of a Linn Sondek LP13 or an LS3/5B! Magazines would fight for the scoops, and the resultant articles would enter audio lore as the first to cover these milestones. I assure you that none of this has been lost on me because I *know* that no other product launch since the Quad ESL-63 carries as much baggage as... a new Quad speaker.

Why *HFN/RR*? Why me? I dunno. All I can say is that I was overjoyed with the prospect of getting my hands on the Quad ESL-989 before anyone else. But I knew that the pressures related to this review were greater than with any other product I've ever covered. This is, after all, the only the only surviving hi-fi magazine in the world to have witnessed the birth of the original ESL, the '63 and now the 989. Whew...

While the ESL-988 is the direct replacement for the ESL-63, the company offered us the ESL-989 first. The 989 is identical to the 988

The 988 and 989 are the result of recently-departed MD Stan Curtis's battle to pull Quad back from the near-death experience inflicted upon it by previous custodians

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apart from the addition of two extra bass panels to improve both the dynamic range and add the sort of bottom octave weight of which Quad has been in denial since, oh, 1955. But this is 2000, and the world — not just the Yanks — wants deep bass, the ability to go loud without tears and the ability to serve in a home cinema system without wimping out.

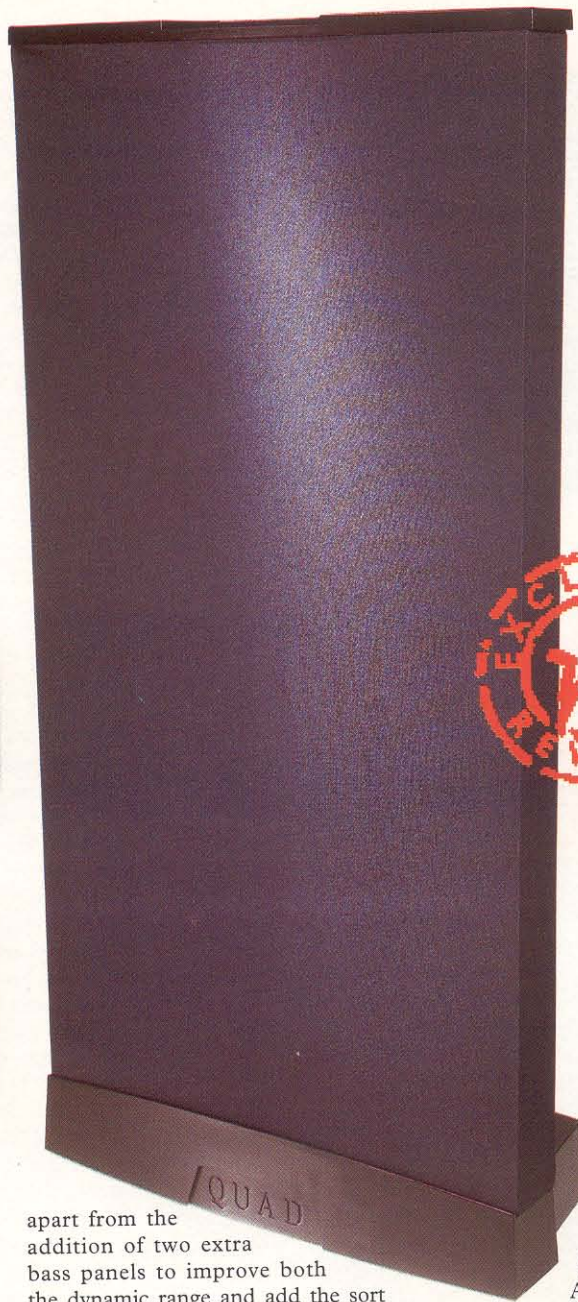
Side-by-side comparison easily confirms that the 989 goes louder and deeper than the ESL-63. And it justifies its £1001 increase in cost over the smaller model, especially if you have a room that will exploit the extra bass and levels. I would say don't even consider 989s for a room smaller than 10x15ft. ESLs need to be far enough away from the back wall to 'breathe', at least three feet, so your 15ft deep room is suddenly down to 12ft.

When you first see a 989, you'll notice that it stands taller than the 988, by 395mm to be precise, and that both look like a ESL-63 that's had its elegant wooden top replaced with a nasty black plastic surrogate.

No amount of coaxing, nor the batting of publicist Angie Curtis's long eyelashes, nor discourses on the cost of creating an injection moulding will change my feelings about it: the wood on the old '63 is far more attractive. If I owned 989s, I'd be straight on the phone to my friendly local carpenter.

Both new ESLs boast improvements in rigidity, the sort which were all-but-denied in an earlier era as mere audiophilic pretension; I seem to recall that the 'rigid' ESL-63 was dubbed the 'pro' version and sold to Americans, while the home market got the limp alternative. Quad states that 90% of the components have been upgraded to 'audiophile' spec and the speakers both have a 5° backward tilt for better dispersion.

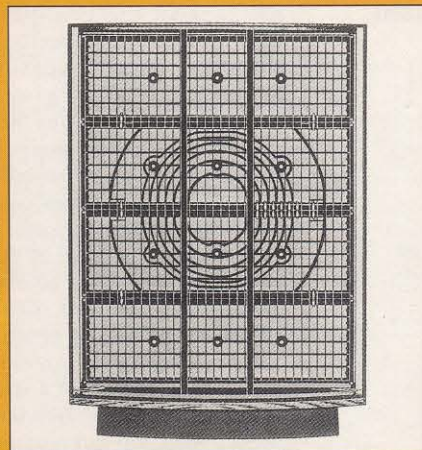
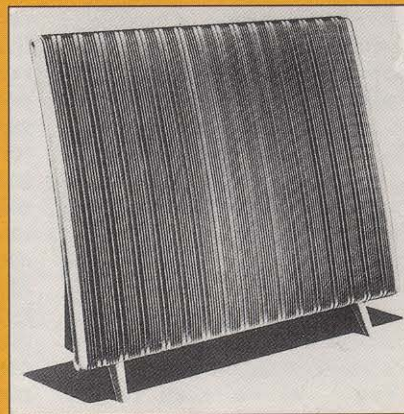
It's important not to understate the resistance to improvement which characterised the life of the ESL-63. Because the company was born in an era before cables and spikes attained mystical levels of importance, it pooh-poohed anything not based on hard science. The 988 and 989 are



WHERE IT ALL BEGAN: THE ESL

Categorically, the ESL-63 represented a departure from conventional electrostatic design, although at heart it is pure ESL. Unlike a cone driver, it works by using a diaphragm made from a very thin membrane, one-tenth the thickness of a human hair, with a special conductive coating. The diaphragm is stretched between two electrode plates with high positive charges relative to earth. A slight difference between the charge on each electrode will cause the negatively charged membrane to be attracted to one or the other, thus creating movement of the diaphragm. The advantages over cones are numerous. Moreover, the assembly is housed in an open frame, so there is no cabinet to induce coloration.

Where the ESL-63, and now the 988/989, differs from its classic 1950s predecessor, is that it is designed to behave as a near-perfect point source 'from which sound waves ripple like a pebble in a lake'. The Quad ESL-63 employs a series of concentric anodes instead of two plates to produce a spherical sound pressure pattern. The series of electrode rings are fed with delay lines. Each ring responds to the change in current a split second after the previous ring, to creating movement in the diaphragm identical to the 'ripple in the pond' analogy. What's so uncanny about the Quad ESL's output is the way the speaker disappears, a phenomenon familiar to users of ESL63s over the past couple of decades. The point source appears to exist behind the speakers; Quad attributes to this a smooth frequency response and a truly three-dimensional stereo stage.



Clockwise from top left: an early 'ESL' prototype, circa 1955, not put into production; the original Quad Electrostatic, in production 1957-1985 and now retrospectively and confusingly dubbed 'ESL57'; Quad founder Peter Walker with his final masterpiece, the ESL-63, launched in 1981; and a stripped view of the '63 showing the concentric ring electrodes

the result of recently-departed MD Stan Curtis's battle to pull Quad back from the near-death experience inflicted upon it by previous custodians. That's precisely why it now boasts audiophilic componentry, an improved power supply and added rigidity. Hell, the speakers even come with a choice of nylon sliders or pointy spikes. Imagine what Peter Walker would think of the inclusion of such...

Arriving in two huge boxes, the 989s are just about manageable without assistance. Each weighs just over 25kg and measures 1335x670x315mm (hwd). Finished in Spinal Tap black, the Quads are almost too sombre. They could do with some light relief, like a different coloured grille 'stocking'. And that black plastic, injection-moulded cap seems out of place on a speaker costing £4000 per pair. Another change from ESL-63 practice which I found annoying is the placing of the speaker terminals and on/off switch at the back of the plinth, rather than on top of it as per the older model. The switch was much easier to use in the earlier position.

Also, it wouldn't have hurt them to put a teensy little LED on the front to indicate that the speakers are powered up. Instead, there's a whacking great red light... on the back. (Martin-Logan is guilty of this, too, although I note that its new Statement E2 makes a feature of a front-mounted 'pilot' light.)

However unusual an ESL may seem to users of conventional systems, the 989 (and the identically-spec'd 988) is no amplifier-breaker. The impedance is a nominal 8 ohms and the sensitivity equal to 86dB/1W. Using a variety of amplifiers — tube and tranny, small and large — I had no difficulty in extracting the desired levels in a 12x18ft room. And, as if to foreshadow the hotly-anticipated new Quad valve amplifier, the 989 sounded best with tubes. Sorry, but that's the way I heard it. For most of the sessions, I used the Musical Fidelity Nu-Vista pre-amp and Nu-Vista 300 or McIntosh MC275 power amps with various sources. Positioning was two feet from the side walls and six feet from the wall behind the speakers, with negligible

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toe-in applied — maybe 10°.

While the 988/ESL-63 and 989 may be virtually identical above, say, 150Hz, from there on down it's another world entirely. Imagine finding the perfect subwoofer for the Quads — an impossibility if you hold that hybrid speakers can never succeed. (This, of course, is a misconception held only by those who never heard a properly set-up Gradient subwoofer with Quads, recent Martin-Logans or the Levinson HQD.) It's as if 45 years of paranoid conditioning have suddenly been swept away. I was able to drive the 989s to levels I wouldn't dream of attempting to extract from the '57 or the '63, while — owner's manual cautioning notwithstanding — there was an added sense of security in the comprehensive protection circuitry. That's not to say that you can feed 'em all that a Krell 600 delivers: they'll fry like a free-range egg. But I was able to set them to levels which I found truly uncomfortable, backing off before they did.

So far, so modern: if Curtis and Co set out to turn the ESL into a real-world product suitable even for

boorish headbangers with large rooms, then he succeeded. Alongside this increase in maximum SPLs came a renewed sense of freedom of constraint. The dynamic capabilities improved audibly, especially with large-scale percussive works such as the new batch of Kodo drummer CDs, the speaker entirely free from the sort of compression — no, make that the application of brakes — which characterised an earlier Quad trying to keep up with big-sounding performances. Here, the *Glory* soundtrack showed differences in 'majesty'. The '63 was impressive. The 989? Positively stirring.

But — as we're all refined individuals who bangeth not head — the real test was to determine if the bass quota had been increased to acceptable levels for those who listen to other than spoken word recordings or solo violin. Let me put your mind at ease about one thing, especially if you own, enjoy and or adore ESL-63s: the clarity, transparency and disappearing act so beloved of the originals remains untainted. You will feel right at home with the 989, and will revel in a deliciously deep soundstage, neutral midband and transient speed challenged only by certain ribbons and electrostatic headphones. But now you can also wallow in the weight and mass normally imparted only by huge woofers.

I have no idea what formula would describe the equivalency; Apogee once equated its bass ribbons in terms of x number of 12in conventional bass drivers. But I can tell you this much: the 989's bass extension and power are close to that of the Wilson System 6 WATT/Puppy. Think of it: a Quad which will deal with rave as well as with Ravel. It was the first time I'd heard Willy DeVille's 'Assassin Of Love' via Quads without sitting nervously in anticipation of the biggest thuds. No break-up, no clipping, just glorious bass.

By any measure, the 989 is a triumph, as well as a bargain in high-end terms. I just find it both ironic and sad that it took the wresting of the brand from unsympathetic caretakers to allow the 989 to happen. If this speaker had been issued in 1981, Quad would now be the world's supreme high-end speaker manufacturer, the high-end reference, instead of a recently-troubled near-anachronism. But Stan Curtis has overseen the creation of a Quad speaker to challenge all-comers, soon to be followed by the appropriate amplifier. Now, let's see what they do with this no-longer-secret, but still possibly-world-conquering, weapon. +

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Quad 989

'Difficult to measure?'

Complementing KK's

subjective review, here's a full lab test and a second opinion on the sound...

by DAVID BERRIMAN

I expected the ESL-989 to be difficult to measure due to its size. Any conventional loudspeaker this big would be awkward, on account of phase cancellations from spaced drive units, floor/ceiling reflections, etc. In the event the Quad was not half so 'difficult' as I had anticipated.

The central section of the ESL-989 behaves as a point source, much like the ESL-63, but with planar upper and lower bass panels added. The distribution of low-frequency radiation across such a wide area seems to avoid the dreaded floor-bounce reflection and resulting suck-out. The dipole radiation from the open baffle, which produces cancellation nulls above, below and to the sides, also seems to reduce mid-range reflections. Even so, the speaker had to be moved out into the room to reduce exciting the lowest frequency room resonances — much as with a conventional monopole loudspeaker. That brings us to the frequency response of the ESL-989 in-room, including all reflections, at 1.5m as shown in Fig 1.

This may look a bit lumpy, but it's much smoother than is usual in-room, no doubt for the reasons outlined above, staying within ± 5 dB from 30Hz to 20kHz. Measuring at 1m (2.83V) on axis and windowing our reflections to give the 'anechoic' frequency response shown in Fig 2, which is very flat, staying within ± 3.5 dB from 200Hz to 20kHz. At 10° off-axis [Fig 3, which includes reflections — hence the small wiggles] there's a gradual downward tilt from around 3kHz upwards, and a smoothing of minor dips at 3kHz and 9.5kHz. As

expected from the fine

transient performance [Fig 5] acoustic phase response (not shown) is not bad either, within $\pm 22^\circ$ up to 3kHz and rotating at about 72° (leading) per octave above.

The bass response was a little difficult to determine from Fig 1 due to the room's contribution, so another very-nearfield plot was taken, at 25mm from the front grille, centrally on axis, which overcame the natural 6dB per octave low-frequency roll-off due to the dipole's inherent front-back cancellation. As expected at this unnaturally close position, output rose by 6dB per octave below around 200Hz, peaking at 45Hz and falling at 18dB per octave below that frequency. Subtracting the baffle's roll-off from this curve gives an estimated output substantially flat down to 45Hz, just 3dB down at 38Hz and about 6dB down at 35Hz.

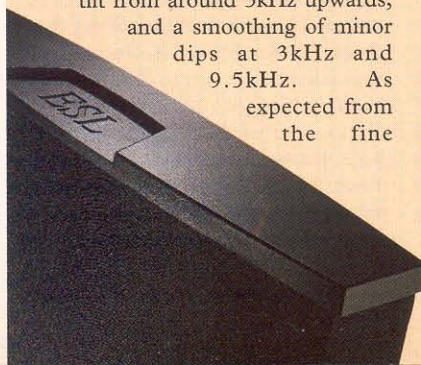
Below 45Hz, output away from the baffle would roll off very sharply, at 24dB per octave (18dB for the diaphragms and 6dB for the open-backed dipole). This ties in quite well with the response measured at 1.5m, if the room peaks are allowed for. So, without the room, the Quad ESL-989 would appear to be within ± 3 dB from around 38Hz to 20kHz, only 6dB down at 35Hz but falling rapidly below. In reality, of course, the speaker and room are inseparable, and typically room gain will boost and modify bass output as in Fig 1.

The cumulative spectral decay (waterfall) display [Fig 4] measured at 0.5m, shows a rapid initial fall-off in delayed output down by 18dB or more in the first millisecond, followed by a few ridges of output afterwards, presumably due to delayed diaphragm flexure. The 989's step response in Fig 5, also at 0.5m, shows a virtually textbook initial rise, with low and high frequencies very well time-aligned. Conventional multi-unit speakers, invariably show a very disjointed trace, but not the 989. The only deviation from ideal behaviour is the downward blip at 0.35ms, which might be a reflection from the rear grille, but further investigation would be needed to confirm this.

The modulus of impedance [Fig 6] is quite unlike that of a moving-coil loudspeaker, peaking at 100Hz but otherwise quite even at around 8 ohms over most of the midrange; the phase of the impedance (not shown), indicated no nasties either.

SOUND QUALITY

Ken's full review gives a detailed account of the Quad's performance, but the Editor asked me to add my own comments to the measurements



QUAD ESL-989

— since I couldn't resist listening to them anyway. I was not a great fan of the ESL 63s, finding them slightly boxy and lacking in dynamics. I don't know what Quad has done — apart from adding the bass panels and strengthening the frame, but it seems to have worked. The loudspeakers have lost that boxy coloration, gained enormously in dynamics and added some bass. As you'd expect, they have that electrostatic magical transparency. Add to that a quite stunningly uncanny ability to project almost holographic stereo images, within a realistic sound stage and you end up with a heady performance. Must be something to do with the pseudo point-source configuration micro-light diaphragms.

Take, for example, the King's College Choir singing 'In the Bleak Midwinter' (Stephen Cleobury, on EMI): this was reproduced so faithfully I could almost 'see' the singers drawing breath, and picture each separate singer or group of singers — all placed squarely in a beautiful acoustic. One unexpected bonus was the ability to hear not only every nuance of instrumental technique, but also every shuffle, and rustle made by the musicians while — and in between — performing. Mostly I hadn't heard these before, or at least not so clearly. If you want to hear every time a musician puts down his instrument or when members of the audience move about, this is the speaker for you. It's an ideal candidate for the new higher resolution, higher bandwidth media such as SACD and the forthcoming DVD-Audio, as these would have more convincing genuine subtle information to impart. Sadly, I didn't still have the Sony SACD 777ES to try this out.

Another CD, *We Got Rhythm* — a *Gershwin Songbook*, with André Previn and David Fink [DG 453 493-2] highlighted the 989's astonishing ability to still sound realistic playing that cruel test of fidelity: the piano. The only problem is that the sound is so clean and convincing, there is a temptation to crank up the volume to realistic levels too.

Unfortunately, as with all electrostatics, the Quads do have an output limit, and I think I found it on that disc, which caused some audible distortion on the loudest peaks only. The accompanying double-bass to Previn's pyrotechnic piano was very uncoloured and clear, but had a tendency to sound a bit fatter than was ideal. In my initial listening position, with the speakers closer to the rear wall, bass output verged on the oppressive, and

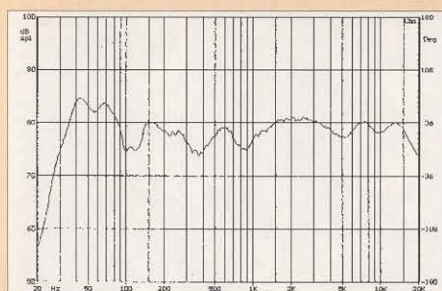


Fig 1. Frequency response measured at 1.5m on axis including room reflections (away from walls) but still ± 5 dB; 30Hz-20kHz

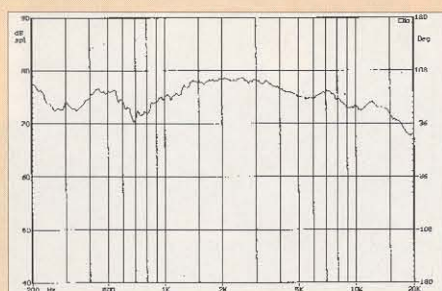


Fig 3. At 1m at 10 degrees off axis, showing gradual roll off above 3kHz (-4db at 12k ref. 2kHz)

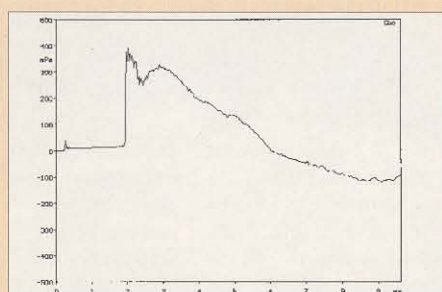


Fig 5. Step response, showing text-book rise time, plus small dip at 0.35ms (possibly due to rear grille reflection)

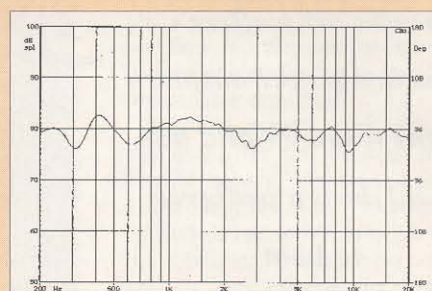


Fig 2. 1m on-axis 'anechoic' (windowed) above 200Hz. (resolution 130Hz) ± 3.5 dB 200Hz-20kHz. At 2.83V input, sensitivity averages on the low side at just 80dB

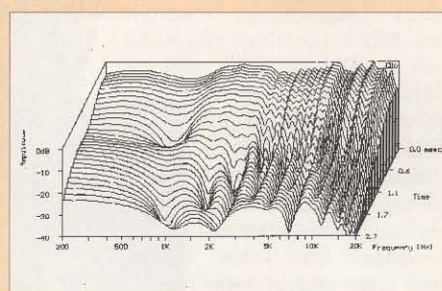


Fig 4. Waterfall at 0.5m, showing rapid initial decay in delayed output, followed by low-level 'ridges' of energy

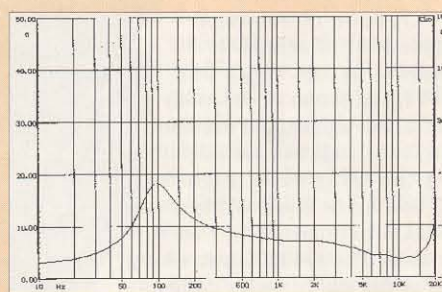


Fig 6. Modulus of impedance is substantially 8 ohms, 3 ohms at 10Hz, rising to 10 ohms at 20kHz and peaking to about 18 ohms at 100Hz

measurements confirmed the excess low-frequency energy. Moving the panels out from the walls and corners, and measuring with pink noise, gave a much flatter response and considerably improved tonal balance: this was the position adopted for most of my listening evaluations. One thing's for certain, these loudspeakers really do need to have some space around them, plus a stable, powerful clean-sounding, smooth and detailed amplifier to sound at their best. I used the Musical Fidelity AC3^{CR} pre- and power amplifiers and matching Musical Fidelity A3 CD player, with stunning results.

The ESL-989 is not 'kind' to poorly recorded discs, however. You basically get what's in the programme material — and a lot you didn't know was there. Hard and brittle material comes through clearly as just that, though toeing the panels in very slightly can help overcome this. Play something really well recorded, and the straight-on position is greatly preferable, as the bandwidth does seem wider and the sound more realistic on-axis. Sometimes, the resulting sound appears to lack penetration and projection, but then the paradox of

neutrality is that it is essentially not 'impressive'.

The lack of colour and distortion, plus the very clean transient start/stop ability, give the ESL-989 a very understated air, but with it the quality of sheer realism, rather than 'hi-fi-ness' which sets the Quad apart. It is curiously addictive, and going back to conventional speakers afterwards merely highlights how great is the 989. In conclusion: a fine set of measurements and a superb listening experience says it all. ✦

Test results

Quad 989

Dimensions (hwd, mm)	1335x670x315
Recommended amplifier power	50*-150W
Recommended placement	free space (see text)
Frequency response	
within 3dB (2m)	30Hz-20kHz
Bass frequency rolloff (-6dB) at 1m	35Hz
Bass frequency extension (typical in room)	29Hz
Voltage sensitivity (ref 2.83V) at 1m	82dB
Forward response uniformity	excellent
Impedance minimum/typical/ease of drive	3 ohms/8ohms/fair*
Typical price (inc VAT)	£4000

* solid-state: for valves, 25W upwards. Maker recommends that amplifiers should be capable of driving low-impedance loads