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GUIDE TO

HIGH-PERFORMANCE LOUDSPEAKERS

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Quad ESL-2905

Heavenly

Jonathan Valin

Before I begin to heap praise on Quad's new ESL-2905 electrostat, which, if there were a Platonic realm of loudspeakers, would come as close to the electrostatic ideal as any 'stat I've yet heard (and I've heard and owned a few), let me say a few words about what a Quad ESL-2905 *won't* do.

First and perhaps foremost for many of you, it won't play *real* loud. And I don't just mean this in an average-SPL sense (although I mean that, too). If a record contains a hard-enough transient, like, say, the gunshot-snaps of the strings on J.W. Warren's guitar near the beginning of "Have You Seen Corinna?" from Mark Levinson's truly great coastal-blues compilation *Came So Far* [MusicMakers], the 2905 will literally make you wince trying to cope with them, even if you're playing back the cut at relatively moderate *average* levels. Because the Quad is so fast and faithful and willing to go, it doesn't compress or round off hard transients; it tries, instead, to reproduce their full dynamic scale but ends up flying at full speed smack into the plate glass window of its own diaphragm-excursion limits, distorting with a literal shattering sound (and if you persist, shutting itself down via its panel-protection circuits before any permanent damage can be done). In other words, though it is well high incomparable in transient speed and clarity, the 2905 is also restricted (at the loud end) in dynamic range to *peaks* of about 95dB SPL. I believe that Quad's Peter Walker, the patriarch of

electrostatic loudspeaker design, once said that every record has "its own correct volume level." What he failed to add was, "Particularly when you use a dynamically handicapped speaker like an electrostat."

Second (and for the same reason), it won't play *real* loud in the bass. Some reviewers (who should know better) have declared the Quad 2905 to be the last word in low-end high fidelity, even on heavy-duty rock 'n' roll. While it *is* exceptionally fast, standard-settingly clear, and (up to a point) naturally full and surprisingly powerful and robust in the bottom, it most certainly isn't the last word in low-end extension, flatness, or dynamics. Like a lot of British speakers, the 2905 has been designed to fool you into thinking it has deeper bass than it really does. To this end, its otherwise excellent frequency response is bumped up a tad in the 40–80Hz range before it begins to plummet (down ten or twelve dB by the time it hits 30Hz). The neat thing about this psychoacoustic trick is that because the dipole Quads are so fast and clear, relatively low in distortion (though not, according to a report in *Hi-Fi News*, quite as low as some of the best dynamic competition), and



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SETTING UP AND DRIVING THE QUAD ESL-2905

It is often said that dipoles are easier to set up than directional speakers. This has always been both true and untrue. While dipoles don't have the sidewall-reflection problems that wide-dispersion cone speakers have, you still have to deal with backwall and backwall-to-sidewall reflections (and, in the ESL-2905's case, the slight rise in the midbass), which means you're going to want pull these things out into the room by about three or four feet and keep them a few feet (at least) from sidewalls. You're also going to want to tune toe-in and speaker-to-speaker-to-listening-position distance by ear. (At least in my modestly sized listening room, I think the ESL-2905s did better with a small amount of toe-in, rather than being parallel to backwalls and at right angles to sidewalls.) There aren't any hard-and-fast rules here, as everything depends on the size and shape and relative "aliveness" of your listening room, although I do think that the ESL-2905s will generally require less "room treatment" than other speakers. (Unless you live in a glassed-in condo, be wary of overdamping your digs.)

You're going to want to attach the weight that Quad supplies to the bottom of each speaker's transformer box to add a little extra mass to the frame, and you're also going to want to attach the supplied spikes. When doing both of these things, be sure to gently lower the speaker face-forward onto a clean rug

by grasping it at its sides. Never lift or lower or move the ESL-2905s by grabbing its rear support-strut. (You're going to need at least two people, BTW, to get the ESL-2905s out of their shipping cartons, and a room with very tall ceilings, as the outside box needs to be lifted straight up and off to gain access to the inner packing and the speakers themselves.) Like all electrostats, the ESL-2905s' high-voltage power supplies need to be plugged into the wall. (Quad supplies the power cords, although you may want to experiment with aftermarket brands.) The speakers also need to "charge up" for a day or so before you play them (or, at least, before you listen to them critically).

As for driving the Quads, I'm sure that many amps, tube and solid-state in the 50-200W range will fit the bill. However, I can strongly recommend one particular combination: the Air Tight ATM-3 monoblocks—beautifully made, one-hundred-watt, 6CA7-based, ultralinear/triode-mode-switchable tube amplifiers that are simply a marriage made in heaven with these speakers. (So, for that matter, is the amp's superb matching preamplifier, the ATC-2.) Also great (for a good deal more dough) are Emotive Audio's 50W, 6550-based Vita monoblocks (and matching Epifania preamplifier). **JV**

well-controlled in dispersion, you don't really notice this small rise the way you would with a cone speaker in a resonant box. Save for a teeny recording-dependent bit of plumminess on instruments that happen to be playing right where the Quad's low-end peaks (around 60Hz), the thing sounds so beautifully balanced, so full, fast, rich, and natural in the bass—with a clarity of line that, as noted, sets a new standard in low-end resolution—you might easily think that you were hearing all the way down into the bottom octave (although you aren't). Up to a point, the 2905 delivers things like hard timp or bass drum strikes, cello and doublebass played legato or staccato, low-pitched winds or brass, and even electric bass guitar and Hammond organ with *exceptionally* lifelike timbre and dynamics. (Part of the Quad's little secret in the bass is that the transients of these instruments are not in the bass but in the midrange, where the Quad's speed and low distortion are superlative; another part is that, since many bass-range instruments don't have the narrower directionality, steeper transients, and wider dynamic envelope of higher-pitched instruments, they inherently sound "softer," more billowy, less focused and, hence, less explosively dynamic, even when they're being played loud.) *But...* try turning the volume up (above mid-90dB peaks) on Kodo drums or the synth on Paula Cole's "Tiger Lily" or the big pipe organ on the Sheffield recording of Mendelssohn's Organ Sonatas, and you'll hit that same plate-glass window in the bass you hit in the midband.

Third, the Quad 2905 won't play *real* loud in the top treble, although here the problem isn't an electrostat's inevitable struggle with diaphragm-excursion limits. It would be if the Quad played

with equal power all the way out to 20kHz, but it doesn't. It rolls off (once again, I think, by design) above 15–16kHz and, though it measures quite respectably flat up this point, it actually sounds more rolled-off on top than it is (just the opposite of its bass). Oh, it will reproduce top-octave piano with the kind of natural sparkle that people pay big bucks for in a ribbon-based transducer, and if there is a better speaker in all this wide world on violins, solo or massed, I haven't heard it. Strings are ravishingly beautiful, even when played with energy in their upper octaves. Whether it's the roll-off on the very top (or the roll in combination with the slight rise on the bottom), the Quad simply takes almost all the edge off recordings that can (and often do) sound edgy on other speakers, and yet it does this without robbing most instruments of their authentic tonal and dynamic character. Most, I say, but not all. The Quad 2905 will reproduce something like a thumb roll on a tambourine with a clarity that lets you hear the skin and every zil. Unfortunately, it also sometimes makes things like cymbal crashes and bells sound a bit tambourine-like—a little like they're being shaken or brushed rather than struck. There is a softness up on top—an airlessness and darkness and reduction of size and power delivery—that is a little reminiscent of CD (which, you may recall, is also bandwidth limited in the treble).

Fourth, the vocal and instrumental images projected by the Quad ESL-2905 don't have as much three-dimensional body as they do through great dynamic speakers. They sound a bit the way medieval art looks—exquisitely detailed and gorgeous, almost gold-leafed, in color, but somewhat flattened in perspective. By this, I don't mean that the soundstage of the Quads lack for

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HOW ELECTROSTATS WORK (AND HOW QUAD 2905S WORK)

Although the theory behind electrostatic loudspeakers dates back to the nineteenth century, it took the invention of Mylar (in 1949) and, later, other plastic films to make the theory practical. Prior to this, what electrostaticians had lacked was an extremely lightweight, suitably flexible material capable of holding a constant charge to serve as the loudspeaker's diaphragm.

In a 'stat that diaphragm is impregnated with an electro-conductive material and then connected to a very-high-voltage power supply that keeps it at a constant charge. This charged, freestanding diaphragm is then sandwiched between two fixed perforated grids called stators, with air gaps (and usually some sort of additional protective spacers) between it and either grid of sufficient width to allow the diaphragm to move freely without actually contacting the stators (this would cause sparking or "arcing" and leave burn holes in the plastic membrane). The stators are fed the audio signal from your amplifier—one stator getting the positive half of the signal, the other the negative half—generating a varying electrostatic field between them. This field causes the charged diaphragm to vibrate like the cone of a dynamic speaker, moving forward and back in response to the fluctuating polarity of the audio signal.

The advantages of electrostatic drive are

many. Being extremely low in mass (often lower than the air that helps support it) and charged equally throughout its entire area, a 'stat's diaphragm moves very quickly and uniformly, increasing perceived transient speed and low-level resolution, and lowering harmonic distortion to the levels of some preamplifiers. In addition, since it doesn't need to be back-loaded by a sealed or ported enclosure, a 'stat doesn't have box coloration (or much of same); it doesn't need elaborate crossovers, either, since it is driven full-range.

However, there are also downsides to electrostatic drive. For one thing, electrostats are typically limited in bass response by low-frequency phase cancellation (due to their dipolar dispersion) and by the limited excursion of their diaphragms (see "arcing," above), which also reduces their dynamic range and scale. In addition, they are prone to "beaming" in the treble. (This highly directional projection of high frequencies is due to the large size of the driver relative to the "small" wavelengths it is attempting to reproduce.) Treble-beaming mandates that the listener sit in one spot, directly on axis with the 'stat panel (the so-called "head-in-a-vice" effect), and makes off-axis listening generally much less satisfactory.

Although America's Arthur Janzen designed and marketed the first widely

depth or width or that the images within it are crowded into a single plane, as in a painting by Cimabue. On the contrary, the ESL-2905s have excellent lateral spread (though not as good as, say, a Magico Mini II), very good depth (ditto), outstanding clarity, astonishingly fine retrieval of ambient cues and of instrumental decay, and tight image focus. Rather, it is the individual images themselves that seem a bit "flat" in volume. All 'stats typically sound as if they miss some of the natural weight, body, and three-dimensionality that cones (and certain planar-magnetics) have, and the ESL-2905s aren't exceptions, although they are better than some in this regard.

Which brings me to two important qualifications to the reservations I've listed above. No, the Quad ESL-2905 could not be called a completely characterless loudspeaker. With its dynamic-range limitations above certain peak levels, its slight softness in the treble, its slight rise in the midbass and precipitous drop in the very low bass, and its slight flattening of three-dimensional body, it has a definite personality that will not suit all music equally well at all playback levels. But—and here is the first qualification—although this particular combination of "weaknesses" is unique to the ESL-2905s, the weaknesses themselves aren't; they are, in fact, inherent in electrostatic loudspeakers, every one of which suffers from them to varying degrees. Indeed, the ESL-2905 will play louder before breaking down, play lower before giving out, and play wider and deeper and with tighter focus and more dimensionality than almost all of its formidable competitors—and all of its Quad predecessors. Plus—and here is the second qualification to my reservations—the ESL-2905's merits (including the improvements I just

mentioned in areas of electrostatic weakness) far outweigh its demerits.

First and foremost, the Quad 2905s (played within its dynamic-range limits) is among the most beautiful-sounding transducers money can buy. Timbres are, if not purely right in the sense of being dead-center audiophile-neutral, as close to right as you can get in a pleasantly forgiving, naturally sweet transducer. Minus a smidge of top-end air, instruments sound almost exactly the way they sound from a middle-row seat in a big, rich, warmish hall like the Berliner Philharmonie. Strings, top to bottom, are, as noted, ravishingly beautiful; piano, also as noted, has the sparkle in the treble and the dark complex density of tone color and dynamic in the middle and bass octaves that it has in life (and simply incredible articulation throughout); winds are sweet and silvery on top, woody and resonant on bottom; brasses are golden (and very powerful on fortissimos—watch those SPL levels!). Voices, from Mario Lanza's powerful tenor on the Cilea aria "Lamento di Federico" on *Mario Lanza Live in London* [RCA]—and, no, when overall volume is set properly, his voice does not break up on crescendos on this, one of the single most consistently powerful and challenging vocal CDs I know of—to Maria Black's sad, dreamy soprano on "I Dream of Columbus" from *Looking Back* [Curb Records] sound as natural in color and texture as stereo systems can make them sound.

Which brings me to the second of the Quad ESL-2905's sterling qualities, and one of the other chief reasons that voices and instruments sound so real, so immediate, so "there"—the speaker's truly phenomenal low-level resolution. Outside the top treble and at the right volume levels, the ESL-

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available electrostat in 1953—an add-on tweeter often used in combination with Acoustic Research’s AR-1 acoustic-suspension loudspeaker—it was Quad’s own Peter Walker (founder of that British company) and his colleague David Williamson who developed and marketed the first full-range electrostat, the fabled (and still highly esteemed) Quad Electrostatic Loudspeaker, popularly known as the Quad 57.

For his next speaker, the ESL-63, Walker devised what is arguably the most ingenious modification of electrostatic technology since he virtually invented the full-range electrostat with the Quad 57. To help solve the treble and bass problems of ‘stats, he attempted to turn the electrostat from a line source (with a line source’s beaming and phase cancellation) into a point source. By splitting the stators into concentric rings, each fed by a slightly more time-delayed signal, he made the speakers react to an input signal like a proverbial stone dropped into a pond, rippling their energy out in concentric waves from a theoretical “point” in space just about a foot behind the planes of the diaphragms. The result was a less beamy treble, a wider sweet spot (less of a “head-in-the-vice” effect), more controlled dispersion top-to-bottom, and somewhat better low-frequency response, although the 63’s “annular rings” and delay line didn’t really do much to solve the diaphragm excursion (and, hence, dynamic range) problems endemic to all electrostats.

Quad’s next efforts, the ESL-988/989, were

more evolutionary than the revolutionary ESL-63 and Quad 57. Both speakers added extra “bass” panels (a misnomer, since all ‘stats play full-range) to the ESL-63’s ingenious concentric-ring panels, augmenting output in the low end and improving dynamic range by adding sheer radiating surface-area.

The speaker under review, the Quad ESL-2905, goes even further in the direction that the ESL-988/989 pioneered, as well as taking off in its own directions. Almost five feet tall (with its tiptoes attached) and almost one hundred pounds per side (with weights attached), the ESL-2905 is far and away the largest and brawniest electrostat Quad has yet marketed. At the center of each speaker are two of Walker’s concentric-ring stators, surrounded top and bottom by six flat “bass” panels (three above, three below) that operate linearly (as opposed to the time-delayed concentric panels), adding, as per the ESL-988/989, even more radiating area to further improve bass and dynamics.

Save for the number of panels, none of this is very different than the ESL-988/989. Where the ESL-2905 steps off into the ether is in the sheer solidity of its construction. Influenced apparently by the way SME’s late Alistair Robertson-Aikman had beefed up his Quad ESL-63s by adding mass and rigidity to their frames, Quad decided to do a bit of the same. The ESL-2905s are the most massive and rigid Quads yet, using stainless-steel frames coupled to aluminum extrusions and wooden trim (finished, in the models I auditioned, in

2905 is perhaps the clearest, most finely detailed loudspeaker I’ve ever heard. When you can hear, without straining in the slightest whether the speaker is being played soft or loud, the timbre and dynamic of every string of Galvin Gallagher’s string bass on the aforementioned Mary Black recording, when you can follow the line of that chunky, squawking, mostly-buried-in-the-mix guitar or synth-guitar (equipped with what sounds like a wah-wah pedal), on the Alabama 3’s “Woke Up This Morning” from *Exile on Coldharbour Lane* [One Little Indian], when you are startled by that little mic pop as Dr. John clears this throat at the very start of “On a Roll” or by the utter lucidity of the bass guitar and purling organ on Irma Thomas’ “There Must Be A Better World Somewhere” from *Till The Night Is Gone: A Tribute to Doc Pomus* [Rhino], when you catch the reverb of every instrument on Marc Cohn’s “Ghost Train” from his eponymous album on Rhino, you know you’re in the presence of loudspeaker greatness. Even something as incredibly finely detailed as the Magico Mini II sounds a bit less discerning next to the ESL-2905.

The Mini II also sounds just a bit slower. Up to the limits of its diaphragm’s excursion, the ESL-2905 is among the fastest loudspeakers I’ve heard, with transient speed that makes even the very best cones (and the Mini IIs are the very best) sound a bit sluggish. Of course, with their very low mass and very low inertia drivers, all stats sound “fast,” but they also sometimes sound wildly uncontrolled due to ringing. Thanks in part to the rigidity of their frames and their point-source configuration, the ESL-2905s are both fast and focused, both hard-hitting and under control. No, they don’t have all the lifelike weight and body

of Mini IIs—it’s almost as if ‘stats are so fast that they leave these things behind, like bags forgotten on the platform in a race to catch a train. Still, they will reproduce a timp or bass drum with genuine room-shaking power (and the kind of speed on the mallet-strike that only ‘stats—and the real thing—seem to own). They’ll just reproduce them with a slightly reduced sense of instrumental size and dynamic scale, as they do with instruments or instrumental overtones in the top treble.

The Quad ESL-2905’s soundstaging is also excellent, though, once again, not as panoramic as, say, that of the Magico Mini II. As sound

SPECS & PRICING

Quad ESL-2905 Electrostatic Loudspeaker

Frequency response: 32Hz-21kHz (-6dB)

Impedance: 8 ohm nominal

Maximum continuous input voltage: 10V

Program peak (for undistorted output): 40V

Dimensions: 1430 x 695 x 385mm (add 25-55mm for feet)

Weight: 76.5 lbs.

U.S.

Price: \$12,000/pr

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a glossy piano-black) for “enclosures” and adding, at the back of the panel, a heavy-duty aluminum strut that runs from the top rear of the speaker to the box which houses its transformers and crossovers at its base and acts as a brace. (There is an additional sizable weight that can be attached, with some difficulty as no instructions are included, to the bottom of the transformer box. Intended primarily to satisfy the “anti-tipping” requirements of the British audio industry, these weights serve the further function of adding mass to the entire framework—and I recommend their use.)

For the indubitable sonic improvements these extra drivers and the more rigid and massive and heavily braced “support structure” have made, see the review. **JV**

sources, they don’t (because of their tonal balance, combination of dispersion characteristics, and dynamic strengths and weaknesses) disappear as completely as a Mini II (or, as you will see in a few months, an MBL 101 X-Treme, which simply owns this territory). You don’t exactly hear a “box” with the ESL-2905s; it’s more like hearing a window—as if you’re hearing *through* them to an incredibly detailed soundstage peopled with incredibly realistic, slightly miniaturized instruments and vocalists, rather than as if they’re completely disappearing and leaving a soundstage and its inhabitants behind. In this regard, the Quad ESL-2905’s aren’t as “transparent” as the original MartinLogan CLSes were.

Bottom line. If you understand and can live

with the inevitable limitations of an electrostatic speaker, the ESL-2905 offers virtues that no other kind of speaker does. Given certain significant dynamic limitations, it will carry you closer to the absolute sound in truth of timbre, fineness of texture, clarity of line and detail, transient speed, and lifelike presence than most cone loudspeakers (Mini IIs excepted). It is not the ideal speaker for stadium rock, for electronica, for drum-and-bass, or for power music of any kind played at true concert-hall or rock/jazz-club levels. But for the smaller-scale acoustic music that I favor—for chamber, small combo jazz, folk, blues, and much rock—and even for the larger-scale music that I often listen to (albeit played back short of concert-hall volumes on fortissississimos), it is superb. Nothing else plays more realistically at low-to-moderate volumes, regardless of music.

Though not without character of their own, the Quad ESL-2905s are the best electrostatic loudspeakers I’ve yet heard. They immediately join the very small rank of truly great transducers that I’ve auditioned. They are to electrostatic technology what the Magico Mini IIs are to cone technology, the Symposium Acoustics Panoramas to planar-magnetic technology, and the MBL 101 X-Tremes to omni technology—benchmarks. Much as I’d like to own the \$30k Mini IIs, the \$100k Symposium Pans, or the \$200k 101 X-Tremes, unless I start knocking over gas stations again I’ll never be able to afford either. I *could* afford the \$12k Quad ESL-2905s and can honestly say that, as of this writing, they are the speakers I would buy if I were buying a high-end loudspeaker. For those of you with taste in gear and music like mine, they are must-hears. **tas**

