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the absolute sound® hi-fi+

GUIDE TO
HIGH-PERFORMANCE LOUDSPEAKERS

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FROM THE Editor

Welcome to the 2010 Stereo Loudspeaker Buyer's Guide, brought to you by *The Absolute Sound* and *Hi-Fi+* magazines. Whether you are looking for a small bookshelf speaker for a second system, just starting out and buying your first 'real' set of floorstanders or want a cost-no-object loudspeaker that makes a grand statement about your listening, it's all in here, a distillation of the finest loudspeakers we've heard in the last few years. We'll also bring you information on the latest developments in loudspeaker design from around the globe. Whatever the price, whatever the size and no matter how new... we've got it covered!

We've divided this Buyers Guide into three distinct sections, based on price; up to $10,000, $10,000-$40,000 and over $40,000 per pair. We think these are fair price points, given the tastes and demands of you the reader; there are many who think a loudspeaker costing over three figures is too expensive, and there are some who think anything less than six figures represents 'lo-fi'. So, we decided to cater for all. We've selected products that deliver excellent sound at their respective prices. No, we're sorry, but we haven't yet stumbled upon the $300 standmount speaker that can fill a large room, have the volume, dynamic range and tonal balance of a $300,000 floorstander and we don't think we'll find such a thing just yet.

What we have instead are speakers that deliver a stunning performance in their class. And as you go from class to class, so that performance becomes all the more stunning. It also often becomes more demanding of room, electronics and even listener; sitting in front of some of the best loudspeakers on the planet can focus your attention on the music in a way that surprises listeners used to listening to background sounds.

It's a difficult thing to swallow in our new-found austerity, but sometimes you get what you pay for. And that's especially true in loudspeakers. Aside from the physically bigger, generally more exotically finished cabinet and the high-grade components, as you move up the price categories, so you buy a loudspeaker that can deliver a flatter frequency response across a wider range of frequencies, a more dynamic, open and accurate sound, and one that can play louder without distortion. Those used to more compromised loudspeaker designs are often shocked at just how much improvement a good loudspeaker can make.

And we've got plenty of good loudspeakers to choose from.

Alan Sircom

Click here to turn the page.

ON THE HORIZON

A Sneak Peak at the Best Loudspeakers Coming Your Way

Jim Hannon

The new **Magnepan** 1.7 has already wowed both CM and JV. Where Magnepan's classic MG1.6 used a planar magnetic mid/bass panel with a quasi-ribbon tweeter, the MG1.7 is a full-range quasi-ribbon-type speaker with what the Magnepan folks describe as a wide-dispersion quasi-ribbon supertweeter. The result is a speaker that equals or surpasses the strengths of the MG1.6, while offering greater transient speed plus an even more detailed, more open, and more coherent sound. CM suggests that in terms of top-to-bottom cohesiveness, the MG1.7 may prove to be the best of all the Magneplanar speakers, and places near-top-tier sound quality within reach of a very wide range of music lovers, not just for an elite few.

Price: $1999.

magnepan.com

Quad has introduced Classique versions of its highly regarded electrostatic loudspeakers: the ESL-2805 and ESL-2905. While the new versions have the same electrostatic panels and design as the standard versions, they have upgraded finishes and grill cloths. The visually striking Quad ESL-2805 Classique sounded glorious at CES, driven by the new Quad integrated amplifier and the Merrill-Williams turntable, producing one of the best sounds at the show.

Price: $11,499 ESL-2805 Classique; $14,499 ESL-2905 Classique.

quad-hifi.co.uk

All prices are per pair

ON THE HORIZON - A Sneak Peak at the Best Loudspeakers Coming Your Way

Magico has unveiled its Q5, a 5-driver, 4-way floor-standing loudspeaker housed in a fully-damped, aluminum and brass, hard anodized enclosure. It features Magico-designed Nano-Tec drivers (two 9" woofers, a 9" mid-bass unit, and a 6" midrange) and a new beryllium tweeter, reported to have significantly wider extension, lower distortion and greater power handling. The Q5's remarkable coherence, low distortion, and rich, delicately detailed timbre and texture reminded JV of a gigantic Quad ESL-2905 at CES. A full review of the Q5 is pending.

Price: $54,000.

magico.net

Wilson Audio's most affordable floorstander has just been upgraded. The new Sophia 3 pulls together the tweeter and midrange drivers from the epic MAXX 3 and Sasha W/P, adds a bass unit with a magnet structure twice the size of its predecessor and a radically revised cabinet. Although retaining the concept of an integrated cabinet, the Sophia 3 uses essentially the S-material top box from the Sasha W/P combined with the X-material for the bass cabinet.

Price: $16,700.

wilsonaudio.com

YG Acoustics has introduced its newest and most affordable speaker—the Carmel. With a cabinet constructed of machined Aircraft Grade aluminum and a unique enclosure to minimize mechanical losses and resonances, the Carmel is an inviting and elegant floor standing speaker. It features a DualCoherent™ crossover between a highly modified ring-radiator type tweeter (the same tweeter used in the far more expensive YG Kipod Studio) and a special 7" woofer designed for both clarity and extension. The Carmel delivers ultra-transparent sound, with a huge yet precise soundstage. AT reported that at CES, the Carmel was admirably free of tizz with solid bass that was chock full of timbral information.

Price: $18,000.

ygacoustics.com

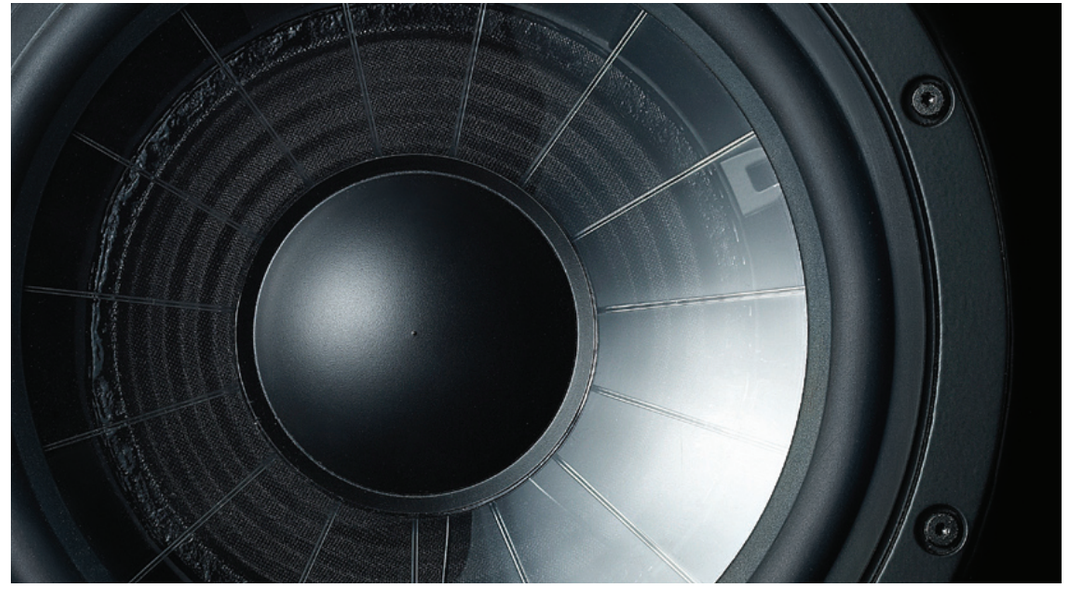
ON THE HORIZON - A Sneak Peak at the Best Loudspeakers Coming Your Way

Verity Audio has announced a new statement loudspeaker system. The Monsalvat is designed to fulfill the requirements of discerning customers with large, to very large, listening rooms. Main towers with a mid/high frequency module seated atop a lower midrange/bass module are complemented by low-bass modules that can be stacked to make towers of (4) 15" woofers per channel. The complete system is 99dB @ 1w/1m and requires no less than 6 channels of amplification. A Verity designed-and-manufactured active crossover is included, allowing amplitude adjustment of each module and delay between main towers and woofers. Expect Monsalvat's release in early-2011.
Price: $325,000 (estimated).
verityaudio.com

To complement high-performance loudspeakers, **REL Acoustics Ltd** has announced the Gibraltar G1 subwoofer. The G1 uses a sealed cabinet, with rigid internal bracing made of layered hardwood, housing a massive 12-inch carbon-fiber driver powered by a 700-watt Class A/B amplifier. Setup and adjustment is made easy by a unique analog rotary control based remote control. What is really striking, and demonstrated to great effect by Sumiko at CES, is that each Gibraltar model can be used in multiples by stacking the units using the optional stacking rails and "daisy chain" connectivity.
Price: TBD.
sumikoaudio.net

Loudspeakers: Why Spend More?

Alan Sircom



It's possible to buy a pair of loudspeakers for just a few hundred bucks. It's also possible to buy a pair of loudspeakers for a few hundred thousand bucks. What's the difference, and why should you spend more?

Human hearing begins around 20Hz (20 cycles per second) and goes up to about 20kHz (20,000 cycles per second), although age, genetics and too many loud concerts frequently mean that latter figure begins to fall off rapidly after we reach our mid-30s. We can also hear across a dynamic range of almost 100dB, which means are capable of comfortably perceiving sounds almost a million times louder than the quietest sounds we can hear. Just think of the difference in sound pressure between a mosquito buzzing a couple of feet from your ear late at night and the climax to the 1812 Overture and you'll see just how massive a task reproducing sound can be. However, even the cheapest electronics can replicate this 20Hz-20kHz range (and beyond) and dynamic range, in some cases with very great accuracy and stunningly low levels of distortion.

The same is not true for loudspeakers. Let's be honest here. The best loudspeaker ever made has deviations and distortions from that ideal that are an order of magnitude higher than apply to most modern audio electronics. And this is why you often get what you pay for in loudspeakers. As you climb further up the loudspeaker ladder, so you get a design that has smaller deviations from a flat frequency response across a wider frequency range, one that reaches down further into the lower end of the frequency range without diminishing the sound, can play with greater dynamic range (without sacrificing clarity), can present a greater sense of live instruments playing in a physical space and can deliver all of these things across a range of volume levels. It's possible today to find loudspeakers that do all of these things without sacrifice or compromise; possible, but expensive. Yet, even at the very top end of the scale, there are still compromises to be made – some loudspeakers will prioritize flat frequency response over dynamic range, for example. Many more try to accommodate as many of these benefits as possible, but do so at the expense of amplifier compatibility or off-axis performance (the ability for more than one person in the room to hear the best possible sounds).

Reducing Compromise

It's also worth noting that the limitations and compromises found in loudspeakers continue to improve, right across the board. Sometimes the best get better and that technology 'trickles down' to smaller or more affordable lines. Other times an innovation born of needing to make thousands of pairs of budget speakers 'trickles up' to more exotic designs, refined and improved upon in the process. All of this means that the 'cone and dome' conventional dynamic loudspeaker may be externally very similar to designs from half a century ago, but produce a sound that is far closer to the audiophile goal today.

The big changes are in materials sciences and in the tools and techniques used by the modern designer. We've come a long way from doped paper cones in simple plywood enclosures; ultra-light spun metal and a variety of plastic materials (from polypropylene to Kevlar) have been used in drive unit design, while all manner of MDF, metal, plastic, glassfiber and stone-loaded resins have been used to make loudspeaker cabinets of greater intricacy and resilience. Crossover networks can sport components derived from the space program (Teflon capacitors, for example),

and even the traditional fillings that fill the interior of a loudspeaker have benefited from years of technology (out goes long-haired wool; in comes Dacron). Some of these innovations have helped to bring more accurate performance down to far cheaper loudspeaker designs, but many have helped make high-end speakers even better than their predecessors. These elements have given designers more scope to break free of the narrow constraints imposed by materials essentially unchanged from the 1920s to the 1970s.

As important in loudspeaker development, the changes to the way a professional manufacturer can measure, design and create loudspeakers has changed beyond all recognition in recent years. While it's still possible to design speakers using your ears and knowledge alone (and good designs are almost invariably fine tuned by ear), most loudspeaker manufacturers rely on a plethora of instruments and computer programs to examine the way every aspect of the loudspeaker works in order to make it work better. And, in many cases, a combination of small, almost inaudible and incremental changes to a design can end up making substantial changes to the sound quality of the loudspeaker as a whole. The use of laser interferometry to view the properties of the vibration across the front baffle of a loudspeaker is still beyond the reach of the smaller loudspeaker designer, but many of the design tools that used to be prohibitively expensive a few years ago are now standard computer programs; this gives even relatively small manufacturers the chance to use a range of technologies when designing loudspeakers and as a consequence, many high-end speakers from small specialist manufacturers have improved significantly in recent years.

Reading The Right Specifications

From a user perspective, what should you look out for? What parameters in the specification sheet are important, and what can you comfortably forget about? From the perspective of connecting the loudspeaker to an amplifier, the two most important figures are sensitivity and impedance (ideally expressed as both 'nominal' and 'minimum'). Sensitivity or efficiency is an expression of how much undistorted sound you can get out of a loudspeaker for a single watt of power output. In other words, a sensitivity rating of 85dB (more accurately, 85dB/W/m) means for a listener sitting one meter from the loudspeaker, one watt of amplifier power will return a listening level of 85dB. The higher the figure, the less power needed to be able to play music and vice versa (it's also surprising just how much power is needed to express something approaching the dynamic range of a piano even at relatively low levels). A sensitivity figure of about 88dB is average today.

Impedance is a measure of how demanding a load the loudspeaker is for an amplifier. Impedance is not a static rating, and varies according to frequency, so is often given both as a nominal (overall) and minimum (worst case) figure, in ohms. A amplifier that 'sees' a relatively benign eight-ohm nominal load, and a minimum impedance of just six ohms has a very easy life, where one that is connected to a speaker that had just over three ohm impedance at best and approaching one ohm at worst will struggle. In the latter case, careful matching to a large power amplifier is mandatory, because amplifiers with a less 'stiff' power supply may not be able to deliver sufficient power. Fortunately, such loudspeakers are relatively rare today and those that are punishing loads are usually high-end designs and are unlikely to be partnered with 'lesser' amp designs.

Unfortunately, selecting the right amplifier for any given loudspeaker is not as easy as the specs might imply. The specifications give broad guidelines (a single-ended triode amplifier will struggle to work with a 1.2ohm minimum impedance loudspeaker; a loudspeaker with 98dB sensitivity is unlikely to be a good match with a 1kW behemoth solid-state power amp), but the only real way of determining synergy with an amplifier is to listen to the two in combination, or take the advice of someone who has heard that combo. Reviewers also frequently cite systems that work together well.

Frequency response is a useful indicator of quality, as well as potential matching with room and equipment. A loudspeaker's frequency response is often cited with limits. The smaller these limits are, the tighter the tolerance of the loudspeaker design. A loudspeaker that claims 40Hz-20kHz ±3dB is going to provide a sound closer to the original source than one that claims 40Hz-20kHz ±6dB, because that last number allows for greater variation across the frequency range. Sometimes, this is due to smaller loudspeakers rolling off naturally in the bass, but the same statistic can hide boosts or dips in the frequency response. Surprisingly, some of these are deliberate, like the artificial 80Hz boost found in some smaller loudspeakers, designed specifically to make them sound 'bigger' than they should.

The first number also represents real-world bass performance. A full-range loudspeaker system should provide sounds from 20Hz. In reality, only a handful of loudspeakers can deliver good, accurate bass in the first octave (16Hz-32Hz), but as this is the domain of the 32' and 64' organ pipe, this is arguably not that important in musical replay. Nevertheless, deep bass is also useful to create accurate soundstaging and image solidity, as it includes components of environmental sounds like Underground trains rumbling below London's Kingsway Hall, which means even if the music doesn't reach that low, an underpinning of bass below 32Hz is useful for truly accurate reproduction.

Other aspects of speaker design are not so commonly pinned down in simple numerical analysis. Loudspeaker off-axis performance, time alignment, crossover design and more are all crucial parameters of a loudspeaker's performance, but not ones that lend themselves to number crunching, at least not outside of the design studio.

But it's here also that the designer's personal tastes begin to manifest. Some manufacturers, for example, demand a loudspeaker to have good off-axis performance, meaning those not sitting in the 'hot seat' (the optimum position at the apex of the listening isosceles triangle) get to hear good sound too. The arguments for good off-axis performance suggest that getting this parameter right almost guarantees good performance in other areas. Some argue that because audio listening is often a solitary pursuit, good off-axis performance is irrelevant, as long as the on-axis sound is excellent. Similar arguments abound regarding all parameters of sound. Even coloration, arguably the first thing a manufacturer tries to eliminate, has its supporters; horn loudspeakers are often criticized for their coloration next to conventional dynamic designs, but their supporters consider that coloration comparatively unimportant next to the increased presence and dynamic range a horn design offers. An important issue here is not to be swayed by arguments either way, but trust your ears when choosing loudspeakers.

Finding the Ideal Demonstration

So, what should you use when selecting loudspeakers? First, try to find a demonstration studio that is broadly similar in size and construction to your own listening room. There's no sense in selecting a pair of loudspeakers in a room one-third or three times the size of your own space, because the interaction between room and loudspeaker is a close-knit one. Ideally, this means a home demonstration, but this can be difficult to achieve with huge full-range speaker designs. For similar reasons, your dealer should be able to replicate your system as best as possible, or failing that bring your own equipment in for the demonstration. Naturally, bring along your own music; try to bring along a broad, representative spread of music you listen to and know well, as well as audiophile test discs, but keep the number of discs relatively low. A good loudspeaker system should not only showcase your music well, but should naturally invite you to deepen your music collection and widen your musical tastes. Being pragmatic, if 99% of your music is opera for example, it's worth weighting your listening to accommodate that, but it's also worth considering the long game – tastes change over time, and the music you listen to today might not be the same as the music you listen to in five or 10 years tie. We recommend that even if your musical tastes are very narrow, try to select loudspeakers that play the widest range of musical material well, and for this reason unamplified instruments (especially ones you are most familiar with) recorded in a natural acoustic still represent the gold standard of subjective listening tests. Generally, if a speaker gets live, acoustic voices and instruments right, it will be able to play a wider range of sounds than a speaker designed to bring out the best in pop records.

Loudspeaker technology has progressed significantly through most of the 20th and the first decade of the 21st Centuries. But development has not come to an end. Each new improvement in the loudspeaker design creates additional demands on the rest of the developmental process. Significant improvements don't happen overnight, but if you bought a high-end loudspeaker 10 or 20 years ago, you should hear what the new generation has to offer. tas

What to Listen For When Choosing Loudspeakers

Robert Harley

Finding the Right Loudspeaker—Before You Buy

You've done your homework, read reviews, and narrowed down your list of candidate loudspeakers based on the criteria described earlier (favorable reviews, brand reputation, etc.)—you know what you want. Now it's time to go out and listen. This is a crucial part of shopping for a loudspeaker, and one that should be approached carefully. Rather than buying a pair of speakers on your first visit to a dealer, consider this initial audition to be simply the next step. Don't be in a hurry to buy the first loudspeaker you like. Even if it sounds very good to you, you won't know how good it is until you've auditioned several products.

Choosing an appropriate amplifier power-output range for your loudspeakers, listening tastes, room, and budget is essential to getting the best sound for your money. If the amplifier is under-powered for your needs, you'll never hear the system at its full potential. The sound will be constricted, fatiguing, lack dynamics, and the music will have a sense of strain on climaxes. Conversely, if you spend too much of your budget on a bigger amplifier than you need, you may be shortchanging other components. Choosing just the right amplifier power is of paramount importance.

Audition the loudspeaker with a wide range of familiar recordings of your own choosing. Remember that a dealer's strategic selection of music can highlight a loudspeaker's best qualities and conceal its weaknesses—after all, his job is to present his products in the best light. Further, auditioning with only audiophile-quality recordings won't tell you much about how the loudspeaker will perform with the music you'll be playing at home, most of which was likely not recorded to high audiophile standards. Still, audiophile recordings are excellent for discovering specific performance aspects of a loudspeaker. The music selected for auditioning should therefore be a combination of your favorite music, and diagnostic recordings chosen to reveal different aspects of the loudspeaker's performance. When listening to your favorite music, forget about specific sonic characteristics and pay attention to how much you're enjoying the sound. Shift into the analytical mode only when playing the diagnostic recordings.

Visit the dealer when business is slow so you can spend at least an hour with the loudspeaker. Some loudspeakers are appealing at first, and then lose their luster as their flaws begin to emerge over time. The time to lose patience with the speakers is in the dealer's showroom, not a week after you've bought them. And don't try to audition more than two sets of loudspeakers in a single dealer visit. If you must choose between three models, select between the first two on one visit, then return to compare the winner of the first audition with the third contender. You should listen to each candidate as long as you want (within reason) to be sure you're making the right purchasing decision.

Some loudspeakers have different tonal balances at different listening heights. Be sure to audition the loudspeaker at the same listening height as your listening chair at home. A typical listening height is 36", measured from the floor to your ears. Further, some loudspeakers with first-order crossovers sound different if you sit too close to them. When in the showroom, move back and forth a few feet to be certain the loudspeaker

will sound the same as it should at your listening distance at home.

Make sure the loudspeakers are driven by electronics and source components of comparable quality to your components. It's easy to become infatuated with a delicious sound in a dealer's showroom, only to be disappointed when you connect the loudspeakers to less good electronics. Ideally, you should drive the loudspeakers under audition with the same quality of power amp as you have at home, or as you intend to buy with the loudspeakers.

Of course, the best way to audition loudspeakers is in your own home—you're under no pressure, you can listen for as long as you like, and you can hear how the loudspeaker performs with your electronics and in your listening room. Home audition removes much of the guesswork from choosing a loudspeaker. But because it's impractical to take every contender home, and because many dealers will not allow this, save your home auditioning for only those loudspeakers you are seriously considering.

What to Listen For

There are several common flaws in loudspeaker performance that you should listen for. Though some of these flaws are unavoidable in the lower price ranges, a loudspeaker exhibiting too many of them should be quickly passed over.

Listen for thick, slow, and tubby bass. One of the most annoying characteristics of poor loudspeakers is colored, peaky, and pitchless bass. You should hear distinct pitches in bass notes, not a low-frequency, "one-note" growling under the music. Male speaking voice is a good test for upper-bass colorations; it shouldn't have an excessive or unnatural chesty sound.

Certain bass notes shouldn't sound louder than others. Listen to solo piano with descending or ascending lines played evenly in the instrument's left-hand, or lower, registers. Each note should be even in tone and volume, and clearly articulated. If one note sounds different from the others, it's an indication that the loudspeaker may have a problem at that frequency.

The bottom end should be tight, clean, and "quick." When it comes to bass, quality is more important than quantity. Poor-quality bass is a constant reminder that the music is being artificially reproduced, making it that much harder to hear only the music and not the loudspeakers. The paradigm of what bass should *not* sound like is a "boom truck." Those car stereos are designed for maximum output at a single frequency, not articulate and tuneful bass. Unfortunately, more bass is generally an indicator of worse bass performance in low- to moderately-priced loudspeakers. A lean, tight, and articulate bass is preferable in the long run to the plodding boominess that characterizes inferior loudspeakers.

Listen to kickdrum and bass guitar working together. You should hear the bass drum's dynamic envelope through the bass guitar. The drum should lock in rhythmically rather than seem to lag slightly behind the bass guitar. A loudspeaker that gets this wrong dilutes rhythmic power, making the rhythm sound sluggish, even slower. But when you listen to a loudspeaker that gets this right, you'll find your foot tapping and hear a more "upbeat" and involving quality to the music.

Midrange coloration is a particularly annoying problem with some loudspeakers. Fortunately, coloration levels are vastly lower in today's loudspeakers than they were even 15 years ago. Still, there are lots of colored loudspeakers out there. These can be identified by their "cupped hands" coloration on vocals, a nasal quality, or an emphasis on certain vowel sounds. A problem a little higher in frequency is manifested as a "clangy" piano sound. A good loudspeaker will present vocals as pure, open, and seeming to exist independently of the loudspeakers. Midrange problems will also make the music sound as though it is coming out of boxes rather than existing in space.

Poor treble performance is characterized by grainy or dirty sound to violins, cymbals, and vocal sibilants (s and sh sounds). Cymbals should not splash across the soundstage, sounding like bursts of undifferentiated white noise. Instead, the treble should be integrated with the rest of the music and not call attention to itself. The treble shouldn't sound hard and metallic; instead, cymbals should have some delicacy, texture, and pitch. If you find that a pair of speakers is making you aware of the treble as a separate component of the music, keep looking.

Another thing to listen for in loudspeakers is their ability to play loudly without congestion. The sounds of some loudspeakers will be fine at low levels, but will congeal and produce a giant roar when pushed to high volumes. Listen to orchestral music with crescendos—the sound should not collapse and coarsen during loud, complex passages.

Finally, the loudspeakers should "disappear" into the soundstage. A good pair of loudspeakers will unfold the music in space before you, giving no clue that the sound is coming from two boxes placed at opposite sides of the room. Singers should be heard as pinpoint, palpable images directly between the loudspeakers (if that's how they've been recorded). The sonic image of an instrument should not "pull" to one side or another when the instrument moves between registers. The music should sound open and transparent, not thick, murky, or opaque. Overall, the less you're aware of the loudspeakers themselves, the better.

Some loudspeakers with less-than-high-end aspirations have colorations intentionally designed into them. The bass is made to be big and fat, the treble excessively bright to give the illusion of "clarity." Such speakers are usually extremely sensitive, so that they'll play loudly in comparisons with speakers of normal sensitivity. These loudspeakers may impress the unwary in a two-minute demonstration, but will become extremely annoying not long after you've brought them home. You're unlikely to find such products in a true high-end audio store.

Finally, the surest sign that a loudspeaker will provide long-term musical satisfaction at home is if, during the audition, you find yourself greatly enjoying the music and not thinking about loudspeakers at all. tas

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"The Finest Loudspeaker on the planet"

Ask many of the most respected music industry professionals in the world what their speaker of choice is - the answer is surprisingly common. The Quad ESL opens a window on a recording unlike any other speaker.

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