

Infinity QRS

Infinity Systems, alone among large audio corporations, has been unique in its long-standing determination to advance the state of the audio art. Other companies—Marantz, James B. Lansing, Altec to name some—long ago abandoned the high-end market (except for an occasional "prestige" product), contenting themselves with an ever increasing array of products in the grab for high volume and big bucks.

This is not to suggest that Infinity has not penetrated the middle market, nor that it is innocent of the marketing policies of the other major corporations. It is not, Infinity successfully parlayed an initial state-of-the-art product, the Servo-Statik I, into a full-blown line of speakers—the glamour of the Servo devolving, as it were, onto the company's lesser productions. Others have done the same. Where Infinity differed was in its continuing commitment to the high-end market over the years, while other growing successful companies got out of the high-end market with unseemly speed.

The audiophile community's reaction to Infinity is, in light of this, decidedly peculiar. In many parts of the country, and particularly on the East Coast, Infinity is viewed with dark suspicion. Even Medieval ignorance. Some of the reaction is Infinity's fault. Most reflects the hostile, unreasoning paranoia that is rampant among audio's outspoken neurotics, who are legion.

Infinity can be blamed, largely, for two things. First, it often releases products before it should, equipment that suffers reliability problems (the Servo-Statik IA; the infamous Class D Switching amplifier). Either that, or Infinity finds some way to improve its products (like the Audio Research of yesteryear) and begins modifications as soon as the product hits the market (the Black Widow; the FET pre-amplifier). Second, it is sometimes indiscriminate in its marketing policies—allowing, for instance, chains like Sam Goody's to deal in some of its high-end products. (Although I do not intend to delve into this subject in any detail, there is also the matter of personal style: Infinity's people sometimes exude a self-righteous and sanctimonious aura that can bend the nerve-endings of more sen-

sitive souls.) It cannot be blamed, however, for being pushy and wanting to make money, although a good many audiophiles I've talked with seem to have a generalized corporate death wish, that is, they seem to want their favorite companies to remain small, unprofitable, and eventually to fail—which would somehow prove honorable and, that P. T. Barnum was correct.

Such an atmosphere does, however, make an Infinity product difficult to review. If one reviews an Infinity product unfavorably, then one is honest and "right." If one smiles upon one of Infinity's renderings of reality, then he is either lying, or corrupt, or stupid, or overtly influenced by the company.

The reviewing task is made no easier by Infinity, whose sonic whiz-kids are ready, at the drop of a hat, to modify a product (and who often do just that), and who are always on the telephone with the reviewer solicitously inquiring whether or not the reviewer is responding favorably to any given product.

For me, that task has been further complicated by the direction Infinity took during the interim period between the Servo-Statik IA and the Quantum Reference Standard. Infinity's sound, during this period, was getting bigger, warmer, more romantic—albeit cleaner. And its products ever more difficult to adjust for optimum performance. As much as I could respect the technical achievements involved, I did not find such a sound musically accurate.

However, the ideal function of any reviewer is to attempt to disengage himself from the swirl of contemporary opinion and report findings in as detached a fashion as possible. He must not write a negative review simply to win the endorsement of fools, nor must he write a positive review à la Julian Hirsch or for any other reason save those for which both negative and positive reasons are written as an informed expression of opinion or finding of fact.

As it happens, in this instance, Infinity's new speaker system, the QRS, would not be an easy product to review under the most favorable of circumstances. Because it is both a product extraordinary and one that falls short of its promise. As we shall see.

A brief description: The QRS contains two 15-inch Watkins woofers, each enclosed in a large (heavy and cumbersome) box; these woofers operate below 100 Hz. The high frequencies, above 4,000 Hz, are handled by 20 (each channel) EMIT tweeters, 13 mounted toward the front, 7 mounted behind the speaker. (For a discussion of the EMIT tweeters, see Issue 10, the QLS review.) Operating in di-polar fashion in the mid-range are Infinity's new Electro-magnetic Induction Ribbon Midrange units (the EMIRM) which, to quote Infinity's literature, are "driven by an 8mm-wide ribbon of aluminum bonded to a pre-stretched ultra-light-weight plastic membrane and suspended in an intense planar magnetic field. This aluminum is the 'voice coil' and is directly coupled to the air itself."

What you get for \$6,500 then is this: Two complete speaker systems containing, per side, one 15-inch Watkins woofer, 3 EMIRM mid-range units, and 20 EMIT tweeters. You also get an electronic low-pass crossover system, similar in principle to that marketed by the Dahlquist Company last year. You must supply the two necessary stereo amplifiers to drive the system: one amplifier for frequencies below 100 Hz—another for the mid-range and high frequencies.

If you do it up right, that is, if you buy amplifiers that will drive the system best, the package can cost more than \$12,000. In other words, more than most poor working families will see in a year.

I should say this at the outset: There's no cheating with this system. You can't scrimp and save on amplifiers, cartridge or tone-arm, or the QRS simply will not sound as good as it can or should. It is not a system meant for the mass market; it is designed, deliberately, to be the best there is. Whether or not it is the best there is, it is excruciatingly revealing.

Let us, then, take the speaker apart—bit by bit.

There are two problems that the prospective consumer will face almost immediately, should he decide to purchase (or even seriously audition) these speakers. The first is that very few contemporary amplifiers will drive the system. The second is a discontinuity in the system's sound.

Those of us at The Absolute Sound soon found, when the QRS was delivered late last summer, that the speaker exposed flaws in some of our favorite amplifiers. I was, at first, inclined to blame

the aluminum voice-coils in the mid-range drivers, which struck me as having—here comes the cliché—a "metallic" sound, like that I've heard on every speaker using aluminum cones. Despite the company's claim that the QRS has a relatively constant impedance curve through the middle frequencies and thus should not present an unbearable loading problem, I thought (and still do) otherwise; namely, that the QRS actually invited amplifiers to misbehave.

Arnold Nudell, Infinity's president, insisted otherwise. He said that only the Audio Research D-150 (at the time) was capable of driving the speaker. Well, we plugged in a D-150. And the brash, slightly glassy metallic sound was vastly ameliorated. (Later, we found [collectively] that the Electro-Research and Threshold 400A amplifiers—the best of contemporary amplifiers, that is—also mated well with the QRS.) But, then, the QRS made it painfully evident that the Hapi One was overloading occasionally in the middle frequencies, and so we replaced it with the Van Alstine/Audio Research SP-3a-2.

Each time, in fact, that we made an improvement in the amplification chain, the QRS sounded more impressively accurate and all the more revealing of myriad details (especially at the back of the sonic stage) that were simply lost on other speaker systems.

All the while, I and each member of my listening panel (independently of each other) found the discontinuity between the mid/high frequency drivers and the woofers increasingly annoying.

It isn't that the Watkins woofer is a bad job. It is, for a cone unit, perfectly remarkable, and an order of magnitude better than the woofer used with both of Infinity's electrostatic systems. But with the QRS, the middle frequencies and the highs are reproduced so quickly (with such fast rise time, if you wish) that the woofer not only sounds sluggish but, worse yet, extremely boxy. As strange as it may seem, that woofer sounds "faster" in the higher part of its range (from about 50 Hz up) and a nearly seamless blend can be achieved—with the highly sophisticated crossover—between the lower part of the EMIRM units and the woofer. No, the problem occurs after the woofer has crossed over into the lower part of its operating range. I think I know the design trade-off here. Infinity went for stupendously deep bass with this woofer, and they got it, down flat into the twenty cycle

region, with some audible response even at 16 Hz. Outside of the Hartley woofer in the proper enclosure, the bass on the system is like nothing you've ever heard. The mid-bass, vital to any realistic sound reproduction, simply does not have the "airiness" and impact of the Magnephanar bass. Not only can the box be heard, but, I believe, one detects the differences in the way the cone material in the woofer sounds, vis-a-vis those aluminum strips in the mid-range, and one also detects the difference between the radiating patterns of the woofer and mid-range units. I am not sure why Infinity did one more thing that emphasizes the discontinuity, but do it they did: There's a peak of 6 to 9 decibels at 32 Hz. It's impressive but it tends to cloud the notes you occasionally get below 32 Hz.

Along the way, I put a problem to the listening panels. I found that in order to achieve a sense of bass impact, I had been running the QRS woofer at levels well above those for the mid/high frequency panels. In some cross-experiments (using the live spectrum analyzer and pink noise generator), I noted that other speakers sounded both best and most accurate with little or no bass spectrum boosting. I asked the listening panel to set the QRS according to the most "satisfying level." That measured 9 db up. Then I asked, without revealing any results, for the most "accurate" level matching. Various members of the listening panel were remarkably unanimous in boosting the lows by 6 db. At the levels which, according to the spectrum analyzer, were flat, the QRS's low frequency sound was adjudged thin, bass-shy, and too "bright" and "projected." The listening panel members did not feel a bass boost necessary when other speaker systems were put to the same test. Nudell himself defended the idea of boosting the low frequency levels when using the QRS, heartily endorsing the idea.

The question for us: What's going on here? Answer: I have no idea. Maybe.

There is one point that should be covered in passing. In the lower part of its range, the Infinity mid-range panels sound a lot less warm than does the real thing. (Older Infinity speakers were, by contrast, warmer than the real thing in this part of the spectrum.) There is a coldness and thinness that belies the way the panels measure. (The QRS measures flat in the range just above 100 Hz.) There is, perhaps, something else afoot here. I do

not believe the transient response of the EMIRM units is as good in the lower part of their range, which may account for the sense of a suck-out here. But it's more theory, for whatever it's worth, that the reason we tended to run the bass up on the QRS was to compensate for the lack of natural orchestral weight and warmth in the lower mid-range and upper mid-bass. (I noted a similar phenomenon with the Cizek speaker, which sounds weak in the same region as the QRS.)

Now we come to the middle frequencies. And this is where the QRS comes in to its own. To say there's never been middle frequency reproduction as stunningly realistic would be, in a sense, overstating the case. I do not endorse the notion, for a moment, that present-day amplification devices are good enough to show what the QRS can do with a recorded signal. [I've heard two prototypical amplifiers, never mind which, on this system that are better than any currently-marketed amplifiers, and which begin to give one an idea of just how very good the QRS can be.] And so I do not know just how good those mid-range units are. But, for the moment, they are good enough to reveal colorations, large and small, on every piece of equipment preceding them in the chain, colorations which, in a number of cases, I had not suspected. From about 200 or 300 Hz up, the QRS is a component worthy of laboratory use (that is, of use to electronics and cartridge designers who want to hear just what their stuff is really doing). For a reviewer, the QRS is nearly invaluable since it is capable of a resolution exceeding even that of today's best electronics.

Yes, I do have some nits to pick. The middle frequencies are more precisely rendered than the highs, which are just a bit "sweet" and "romantic," although clean enough to mate very well with the middle. Nevertheless, there is the slightest sonic discontinuity, one made apparent by the dispersion patterns of mid-range and high frequency drivers. The imaging precision of the highs, radiating without di-polar configuration—more nearly on the firing backward principle—simply isn't as good as that of the mid-range. High frequencies, that is, the higher harmonics, tend to wander a bit, creating sometimes (in combination with the vertical strip arrangement of the drivers) an orchestra that seems to have too much height. And I do not, generally, like the imaging arrangement, which I find,

despite Infinity's reflecting panels (which allow one to adjust both the width and depth of the sound), to be somewhat bunched up. Infinity can (rightly) complain that Music Room 3 is too small for these speakers and that one cannot sit far away enough to allow a proper blending of the vertical driver elements; I also realize that Infinity can suggest that the room is not large enough to allow the bottom end to blossom in the way that it does in more baronial listening rooms—and so these comments may be read in this light.

My reactions to the EMIT tweeters are identical with those I had originally.

Let us put all this together: The QRS is the first speaker system Infinity has produced, since the Servo-Statik IA, in which the dictates of an accurate sound have taken precedence over the rather glamorized, lipsticked sound the firm produced in the intervening years. For all of its size and dimension, the QRS is capable of producing a rather intimate, finely detailed sound-stage. Its overall sound is on the coolish side—and, with some components, on the icy side. Its low end, while not as woolly-booger as that of the Servo series, is—in the upper part of its range—tight and somewhat recessed, thumpy and slow in the lower part of its range, though capable of reproducing stomach-shaking bottom bass. There is a trace of a metallic sound in the upper middle frequencies (the aluminum voice coil?) and a hint of glassiness, though this will depend largely on the amplification that is used with it, and there is something in the lower mid-range—a lack of life, if you will—that robs the speaker of the warmth the real thing has.

The minor evolutions the speaker has undergone since last summer have improved its performance significantly—these adjustments have mostly been the result of Infinity's tampering with the crossover points of the system. (There have been modifications to the cabinet to reduce certain diffraction effects.)

But, in order to realize its full performance capability, the QRS will have to be fed considerable amplifier power—more, in fact, than is currently available with the very finest of present-day amplifiers. Otherwise, at listening levels exceeding 95 dBA (or when peaks exceed that figure), there is going to be amplifier clipping, which seems to exacerbate both the mid-range and tweeter panels' inherent resonances.

(In large rooms, one wonders whether

the QRS can be driven to any acceptable level without a behemoth amplifier.)

One can minimize the discontinuity between the middle frequency panels and the woofers by using two amplifiers of the same make. It is surprising, to me anyway, that two similar amplifiers do so much to resolve (but not eliminate) that discontinuity. While one can safely suggest that all bi-amplified speakers should use identical amplifiers, in the case of the QRS that suggestion must become an absolute requirement—if, that is, the speaker's potential is to be realized. No, the discontinuity won't disappear; but it will be reduced to a nearly tolerable level.

Unlike the Beveridge electrostatic, and like the Tympani I-D, the QRS does not come alive until it is fed a good bit of power, leading one to theorize that it does not resolve well on low-level transients.

The final question: I've been asked by members of the staff et al., whether or not I "like" the QRS. Well, in earlier issues, I said that I really don't like any speaker system and I don't. None of them allows one totally to forget the system and concentrate on the music. Like the Beveridges, the Pyramids, the Acoustats and so on, the QRS has, for me, some noxious imperfections. I do not, for instance, understand why (other than a need to satisfy the imperatives of the West Coast sound) Infinity pursues the idea of a cone-type woofer mated to innovative mid-range and high frequency speaker materials. Nudell says it's impractical, maybe impossible, to extend the EMIRM principle into the bass. But I question the compromise in a purportedly state-of-the-art design. It would indicate to me, if anyone asked (and they didn't) a failure of nerve at the outer limits of the art—in much the same way that Infinity's decision to drop its Class D amplifier because of the ferocious technical difficulties it encountered struck me that way. No, I don't "like" the QRS. But I can and have, happily, lived with it over a period of time—happily because the speaker is honest, it is revealing, it reproduces the frequency range from 300 Hz up as cleanly and quickly as any speaker in the world. If it lacks the Beveridge's supreme mid-range naturalness, it is heir to none of the Beveridge's colorations (too much frequency deviation, too much warmth, too much sweetness) and few of its dynamic range and loudness restrictions. And yet, the QRS is—bass excluded—a much better speaker, flaws and all, than almost anything else in



the business. I am far from certain that the QRS isn't such an accurate device over most of its range that it reveals the sort of flaws in present-day amplification that many critics suggest do not exist. We will have to wait for a new breed of equipment before we will have the full measure of Infinity's Quantum Reference Standard. And for the extension of something like the EMIRM middle-frequency panels into the bass before we know if Infinity has, indeed, been able to achieve a state-of-the-art design.

—HP

Manufacturer: Infinity Systems, Inc., 7930 Deering Avenue, Canoga Park, California 91304. **Source:** Manufacturer's Loan. **Serial Numbers:** 0001, 0002. **Price:** \$6,500.

Manufacturer's Comment:

We are grateful to The Absolute Sound for raising a common misconception about Infinity's choice of dealers and marketing policies, because it provides the opportunity to explain some of the facts of the matter which may not generally be appreciated.

Infinity, although a major factor in the speaker industry, maintains a limited distribution, carefully selecting dealers that it feels are capable of providing appropriate before and after sales service. Some of these dealers are large chains; for example Sam Goody, Pacific Stereo, Tech Hi-Fi; and some are small, single-store businesses. While in the past audiophile products were generally associated with smaller dealers, our research, and our own sales, indicate that an increasing share of the total "high-end" equipment market is being taken by the larger dealers. One reason for this is that they are, in general, often more efficient and better managed. Others are their greater and more imaginative promotional activities, and their more "approachable" nature for the inexperienced buyer.

Infinity makes a wide range of hi-fi components, including relatively inexpensive loudspeakers in which some performance parameters have to be compromised to the dictates of cost and practicality. Many small dealers do not sell low cost products, and by making this choice they are losing the chance to educate and encourage the inexperienced listener toward a real interest in "state of the art."

Of course, there are many small dealers who do an excellent job—for us, and for other manufacturers. In fact, it is quite

difficult to assume as we sometimes hear that a dealer's size and quality are in any way related. They are not. Infinity's goal is simply to make the best products it can, and to arrange its distribution so that the greatest number of people have the opportunity to enjoy them.

We should like now to raise a few points concerning the QRS system itself.

(1) The load of the QRS from about 80 Hz up is almost purely resistive. We have looked extensively at the behavior of various amplifiers into the QRS load and have been unable to detect any unusual anomalies which are load induced. We are convinced that HP was listening to the actual sound of the amplifier itself. If HP heard various amplifiers misbehave, then the QRS was allowing him to hear the distortion more clearly. The Servo-Statik system also exhibited this "look through" phenomenon; however, due to its unusual load characteristic, one could not as easily pinpoint the true reason for the perceived breakup or distortion.

Incidentally, although all contemporary amplifiers can drive the QRS system, only a few are sonically satisfactory.

(2) The QRS unit which was supplied to HP in August 1977 was an early production version. All subsequent production units have a larger woofer enclosure by 1.5 cubic feet. This additional volume clears up the bass response below 50 Hz to a considerable extent and in addition allows more air in the mid-bass area.

(3) The flexibility of the QRS in level matching the 80-100 Hz region of the mid-range panels with the woofer is evident from the various controls on the electronic crossover. That notwithstanding, it is virtually impossible to match the woofer/midrange response exactly right in every room situation. Generally, the larger the room the easier it is to achieve flat response across the band. For example, in my own living room (26' L x 20' W x 18' H) it is possible to achieve response of ± 1 db 32 Hz to 16 kHz. In general, it is best to match woofer to midrange in level around 80 Hz. If one then seats oneself against the opposite wall, for example, the 20-30 Hz response could be elevated due to pressure maxima at the wall boundary. Moving one's seating area toward the speakers will reduce this area considerably. This effect is not indigenous to the QRS but applies equally well to all speaker systems. Other speakers might well benefit from this phenomena due to rapidly falling response in the 20-30 Hz area.

(4) The QRS is not an extremely inefficient system and therefore can be driven to deafening levels with high powered amplifiers. None of the elements in the speaker are fragile and therefore are able to handle any of the behemoth amplifier's on today's market. In very large rooms, we have easily attained 112 db peaks with no strain, overload or ear fatigue, with 200-250 watt amplifiers. (The QRS has a nominal impedance of four ohms and therefore can extract maximum power from most well-designed amplifiers.)

(5) Finally, we should like to point out that extending the EMIRM principle to the bass would indeed produce marginally better mid-bass air. However, it is our considered opinion that at this point in the "state of the art" we cannot produce the Mahlerian orchestral weight and impact, and concert hall bass ambience, without well-designed and properly treated dynamic woofers—our residence on the West Coast notwithstanding.

We again compliment TAS for a most comprehensive, accurate and well written review of our Quantum Reference Standard. By the way, Harry, we at Infinity are a most sensitive lot!

**Arnold Nudell, President
Infinity Systems, Inc.**

PHD Comments:

Since HP began his review by describing Infinity, I think that I too should jump into the fray. In the audiophile community Infinity ought to be respected for its innovativeness. The man largely responsible for this is Arnold Nudell. Many of us pursue the audiophilic neurosis to unbelievable lengths, but Arnold Nudell probably leads the pack. I am sure there are times when he has lucid moments and is concerned about the profits of his company, but I think for the most part, this man is really interested in finding the elusive "absolute sound." Nudell loves music; he travels throughout the world, never missing an opportunity, either at home in California or elsewhere, to hear serious music, live. He must then spend the rest of the evening pondering how to achieve the same sense of "liveness" through electronic and electromechanical media.

By its own choice, Infinity works at the outer limits of the audio art, and to get "at" those limits, Infinity never uses the conventional technology when a more unconventional one is available. Predictably, at least from a Murphy's point of view, Infinity's hedge-row aerial acrobatics

should, at times, invite disaster. And yes, Infinity has bombed. And sometimes bombed big.

Possibly the audio community is right in being somewhat standoffish about Infinity, since one really never knows whether the company is about to drop one of its bombs or release one of its miracles. In the case of the Infinity Servo-Statik I and Model 1-A, the company did both. From a reliability point of view, these things were, and probably will continue to be, a bomb. But, from the standpoint of sonic purity the Servostatics were somewhat of a miracle.

All of this brings me to the subject of the QRS and that nagging question—is it a bomb or a miracle or both? One point that I don't think HP has made and that should be made about the QRS is that Infinity has certainly not bombed this time in building a very reliable product. Both HP and myself have had the Infinity QRS on test for about nine months; I have experienced no failures whatsoever. The Quantum Reference Source is using technology which was developed for the QLS (the tweeters are identical), and the midrange uses the same concept which has already proven itself in the EMIT tweeter and in a design similar to that used in the Magnepanians. The woofer, as HP points out, is a conventional 15-inch cone type and we are all aware of that unit's reliability. So I think that one could expect to plunk down \$6,500 for a pair of QRS and feel quite assured that these devices would be reliable for an extremely long period of time.

The Infinity QRS is such a behemoth of a speaker system that it is hard to imagine placing this system in any conventional living or family room without its completely dominating that room. And this may be one of the major drawbacks of the system. The system must be placed three to four feet away from the rear wall and several feet from either side wall. And, considering the fact that the system itself is over two feet deep, you can readily imagine how this will place the system as much as five feet out into your listening room. My listening room, which is 18 feet long and 15 feet wide, accommodates this speaker system incredibly well. Maybe one decorative reason it does is because I have placed thin, acoustically transparent drapes at one end of the room to hide speakers under evaluation. These drapes have been drawn partially across to hide the speaker's incongruous lines. These in-

congruous lines result from Infinity's efforts to provide a psychoacoustically flexible speaker system, one that adapts readily to many environments and (hold on to your hat) to many different pieces of electronic gear. It is a design that allows the user to adjust a large panel two feet wide by three feet tall to assure proper top and bottom center fill. But the speaker also sports an inner panel (one foot by seven feet) which may be adjusted for midrange blending and balancing with the QSR's tweeter and woofer elements. The strange thing about both panels is that they move in the opposite direction than one would expect. For example, if greater center fill is needed, the outer 2' x 3' panels are moved backward (away from the listening area).

But most strange is the effect that different amplifiers have on the focus and imaging of this system. Most of us would expect the system to stay stable (with respect to focus, image, and center fill) as various amps are interchanged; the QRS does not. This is, more than likely, not the speaker's fault, but rather a result of inconsistent phase characteristics in various electronic components. I have tried six different amps so far and each required a different panel adjustment!

For the first time, I believe HP and I are in substantial agreement about the sonic characteristics of a speaker system. I have read his review carefully and can find only a few things with which to take issue. But I must disagree rather substantially with his bottom line conclusions. I, for one, would rather listen to the QRS. I prefer it over the sound of any other speaker system that I have heard. I imagine I would place the Magneplanar I-D or the Servo-Statik 1-A in second place in making this kind of judgment. (I, for one, cannot forgive the Magneplanar's lack of deep, deep bass and its mid-bass coloration. I also find it difficult to live with the bloated sonic image of the Maggies. But other than that I'm in substantial agreement with everything HP has said about the Magneplanars.)

The QRS's strengths lie in (1) its superior ability to focus and image and (2) its ability to develop a correct sense of depth. You can wander about the listening room and the QRS will maintain a tremendous degree of stability in the stereo stage. In addition, there are no hot spots developed by this speaker system. You can listen directly on axis to either one of the speakers and still be aware that there is a

sound field spreading to the extremes beyond that axis. The QRS is a bit shy in uppermost air. I would say that above 14,000 cycles something is amiss. But the tweeter on the QRS is without peer from the 2,000 to 14,000 Hz region. The midrange of the QRS has characteristics which are extremely comparable to the top end; it's fast, and for the most part, colorless. I might compare the midrange of the QRS to the midrange of the old Servo 1-A or even the midrange of the Magneplanar, but it (the QRS) is more precisely focused and appears to be lower in distortion products. But, as HP points out, it is this mid-top configuration that drives amplifiers bananas. To date, the only amps that I have found able to drive the QRS (without causing bored holes in my head) have been the Electro Research Model A75, the Threshold Model 400A, and the Double Dyna 400. (Naturally the Audio Research D-150 would be high on the list if it were available.) I, too, have to agree with HP on the subtle discontinuity that exists between the bottom and the mid-top units. I, too, have been able to ameliorate this discontinuity by using amplifiers that are identical; in other words, two Electro A75's or two Threshold Model 400's. So obviously the speaker is capable of showing up even subtle differences between power amplifiers. I think the mid-bass problem that HP refers to (and really, it's a wee bit lower than mid-bass) is the lack of dipolar radiation in this region. HP says he prefers the mid-bass of the Magneplanar; however, one must remember that are also some strange colorations in the Magneplanar that tend to glamorize that portion of the Maggie and make it less accurate. I, for one, would opt for something between the sound of the Maggie and the present QRS as being most realistic. I can't add anything to what HP says about the bottom end of this system except that I have given up using my 24-inch Hartley woofer (which was mounted in the floor). The QRS is the first speaker system that has ever achieved such a tremendous sense of realism, airiness, impact, and generally exciting extreme low end. It's difficult to tell the difference between sitting in Duke Chapel and listening to the new Flentrop organ there, and sitting in this living room and listening to the QRS.

I, too, have an opinion on why one might tend to run the bass up on the Infinity QRS, but my opinion differs from HP's

quite a bit, because I feel that even with the finest amplifier I've heard (either the Electro Research A75 or the Audio Research D-150) there is a trace of roughness and dryness in the midrange of these units that one is attempting to compensate for by boosting the bass. Obviously, this point will have to remain moot for the time being until either Infinity or someone else comes along with a better amplifier to prove me right or wrong. (Incidentally, as an adjunct to the discussion about the demands that the tweeter/midrange places on the top end of this system, I have measured the impedance of this system using variable frequencies and an impedance bridge and find that it does dip as low as 2 ohms in certain regions.) I think the point must be very clearly made that the Infinity System is not totally at fault, when, as HP comments, the system sounds rather cool and dry with certain components. Because really it is the components that are at fault and the QRS is merely showing them up. I have made a series of distortion measurements on both the tweeters and midrange panels and I stand amazed at the results. Generally, the distortion products that I have been able to measure on this system are close to the residual levels of my Sound Tech analyzer in the middle and upper frequencies.

In sum, the QRS possesses a mid-top that is equaled by only a few in certain regions and exceeded by none overall, a mid-bass which (as HP points out) can use a smidgin of airiness, and a bottom end that is second to none. This is a speaker that is destined to become my new and, I believe, long-term reference.

Reviewer's Postscript:

Wouldn't you know it? Because of some confusion and a communications failure, I was unaware that Infinity had already detected the lower mid-range suck-out in the QRS and had added extra capacitors to the crossover to solve the problem. Solve it they did, but at a small cost. The cost is a minor loss in smoothness at the actual crossover point between the midrange and bass speakers.

Further listening, especially in comparison with several other of our top-ranked speakers, does convince me that I may have slightly undervalued Infinity's significant achievement in the creation of the new midrange drivers. There's a spooky see-through quality to these mid-frequency units—in terms of purity and

openness—that, despite some audible glassiness near the top of the ENIRP's range, is more revealing of what is on disc than I would have believed possible. (Remember that we have not yet determined whether the midrange units are reproducing amplifier colorations (of their own.) Reproduction of the midrange is in the same class as that afforded by the Beveridge and Quad loudspeakers.

While I believe that the Beveridge has greater clarity at lower volumes and that means somewhat better resolution, it also has a "character" of its own (a consistent warmth or sweetness, not unlike that of some of Stax's electronics, or, perhaps, that of FETs). The Infinity, which plays considerably louder, is audibly closer to the ideal; that is, neutrality.

By fiddling more than a little, I was able to achieve, with the lower midrange brought back into focus, a better sense of balance between the midrange panels and the bass. Nothing wild, of course, totally eliminate the discontinuity just as, I suspect, nothing will make the bottom bass as airy and detailed as the middle frequencies. I am, to be sure, in agreement with PHD about the lack of openness in the extreme highs—above, say, 14 kHz. (Which is why I referred persistent readers to my remarks on the EMIT tweeters in the QLS review, Issue 10.) Comparison listening with the other speakers has left me a little more dissatisfied with this lack of air than I had been. But the extreme highs are very "fast," and fast without losing any of the sense of sweetness that nearly always characterizes Infinity's ideas about the reproduction of very high frequencies. Many, if not most, will find Infinity's renderings preferable (considering present-day material) to less "sweet" reproduction.

Let me say this: From the lower midrange (about 200 Hz) on up to the top octave (around 14,000 Hz), the QRS renders orchestral harmonics more neutrally than anything else I've heard, Electrostatics included. This neutrality has been achieved at a price (including that demanded of you in the way of the best associated electronics, and those problem areas I delineated in the main text of the review) but the QRS will, I can assure you, obsolete (by ruthlessly exposing colorations in your associated equipment and recordings) many widely held notions about what sounds good and the bearability of today's more prevalent euphonic colorations.