



# Infinity Prelude MTS loudspeaker

By Michael Fremer • Posted: May 3, 2000

Sometimes you have to wonder why big corporations gobble up small speaker companies. Most such firms are built by individualist entrepreneurs chasing an elusive dream—an up-close and personal thing that is the antithesis of the corporate mentality. That's why speaker companies are so often named after the founder.



The company builds a solid reputation and is then bought out, and for a while, momentum carries the day. But then, unless whomever is brought onboard to engineer new designs can carry the dream forward with products that are innovative yet maintain the franchise's distinctive personality, the brand slides into eventual oblivion.

When Harman International bought Infinity from Arnie Nudell and Cary Christie in the early '90s, it bought a solid brand name that was familiar to consumers outside of the specialty audio world. It bought significant, innovative technologies, including one of the first servo-controlled subwoofers, the EMIT ribbon tweeter, and the EMIM ribbon midrange unit.

It also bought a line of speakers that included the RS-1 series, one of the most well-regarded audiophile loudspeakers of the 1980s; and the flagship IRS, considered at the time of acquisition to be among the finest speakers in the world, and one guaranteed to get coverage in *Playboy*, *The Robb Report*, and other publications read by non-audiophiles. Fabio owns two pairs. I heard them when I worked for *The Absolute Sound*, and while Harry Pearson often had the bass turned up too much for my tastes, when everything was right that four-monolith giant could seem to disappear, leaving music on a symphonic scale.

Perhaps Harman felt the Infinity name alone was worth the purchase price, if only to use as an OEM brand in the then-developing and lucrative market of car audio. As a hedge against making a bad business bet, that certainly worked out in Harman's favor, but it was clear to anyone who followed the Infinity brand after the acquisition that Harman desired to maintain the line's luster.

Yet the brand name seemed to founder for a while as Infinity's speakers didn't catch fire with the core audiophile market. Then someone made the decision to carefully rebuild the Infinity franchise as a premier line of innovative loudspeakers. Serious corporate assets were invested in design talent and technology.

With the introduction of Compositions in 1995, the investment paid off. A precursor to the Prelude MTS loudspeaker under review here, the Composition Prelude PF-R (very favorably reviewed in the September 1995 *Stereophile*, Vol.18 No.9) was a truly original design in the Infinity tradition. It put Infinity back on the map as a serious player in the specialty audio market.

## What's New?

Corporate historians will no doubt shed greater light than I have on the reasons for Infinity's rebirth, and for the brand's new place of honor in the Harman International loudspeaker holdings (which include JBL and Revel). But one factor clearly was the hiring of Dr. Floyd E. Toole as vice president of engineering.

Toole's name is familiar to most audiophiles. Among other subjects, he has conducted groundbreaking research into why loudspeakers sound the way they do, how they are measured, and how listeners perceive what they hear, all at Canada's National Research Council in Ottawa. Toole brought with him to Infinity fellow Canadian Allan Devantier, who heads Infinity's design team and is responsible for the Prelude MTS, while another of his NRC colleagues, Sean Olive, is in charge of Harman's subjective evaluation program.

A few months before Toole arrived to supervise the Prelude setup in my listening room, I was invited, along with many other audio journalists, to Harman's Long Island headquarters for a daylong seminar on the technical and perceptual dimensions of audio: how loudspeakers work, and how they interact with listening rooms. This valuable tutorial was free, along with lunch and a thorough account of the Prelude's design rationale—which, as you might have figured, dovetails quite nicely with what has been learned by Toole and others throughout a lifetime of research.



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The \$8000/pair (\$10,000 as of 2002) (with powered subwoofer) Prelude system is designed to produce as flat a full-range frequency response as possible on-axis, and uniform, controlled dispersion off-axis. This is important: the research shows that we are incredibly sensitive to resonant peaks, and that these peaks create the "colorations" that, for the most part, help us decide if a speaker sounds "good" or "bad." Generally speaking, the higher the Q of the resonance (the narrower the peak in the frequency domain), the greater the amplitude must be of that peak for us to hear it. Toole's research demonstrates that we can perceive low-Q resonances (*ie*, those that cover a wider frequency range) that deviate as little as 1.5dB from flat on orchestral material, and as little as 0.3dB on pink noise.

We all know that resonances are common in drivers and loudspeakers, and especially in rooms. The four-way, full-range Preludes incorporate a single-band parametric bass-equalization scheme (Infinity's R.A.B.O.S., or Room Adaptive Bass Optimization System) to deal with low-frequency room "bumps," and stiff, lightweight, effectively damped, low-resonance Ceramic Metal Matrix Diaphragm (C.M.M.D.) drivers of aluminum coated on both sides with ceramic. These drivers are designed to have uniform dispersive characteristics so that direct and reflected sounds maintain similar timbral balances.

The graphs showing the ultra-low resonances and distortion characteristics of these C.M.M.D. drivers are truly astonishing. In addition, the impedance curve of the system is said to be 4 ohms,  $\pm 1$  ohm across the full audio bandwidth—itsself an impressive engineering feat, and super-critical when driving the tower section with tubes, or any amplifier with a high output impedance.

As we've all seen in *Stereophile's* published measurements, if an amp with high output impedance is mated to a speaker with a widely fluctuating impedance, the amp's frequency response will pattern itself after the speaker's impedance curve. The research shows that this is easily heard. It is the loudspeaker that is causing the amplifier to "sound," not vice versa.

### Do I Want My Myths Shattered?

You may ask why, after a day of heavy pummeling by Floyd Toole—a CD-loving scientist who relies strongly on measurements, who cuts mystics and "observational reviewers" no slack, and whose research proves that when we can see what we are about to hear, we form hopelessly prejudicial responses—I still wanted to review these speakers. You also may ask why he'd want them reviewed by someone like me—or by any "observational" reviewer, for that matter. Actually, he may not, given some of the disparaging things he's written about nonscientific, "casual" reviewing in his published research.

There may be a single answer to both questions: In discussing the bass-equalization feature, Toole admitted that attempts at this made in the 1970s yielded great measurements but, according to the golden-eared, "bad bass." And guess what? The ears were right. The observational types heard things that the primitive measuring devices of the time couldn't. Today's gear shows—and Toole showed us—that 1/3-octave equalization mutilated bass performance in ways that were then unmeasurable but clearly audible. So if I didn't like the sound of these "near-perfect"-measuring loudspeakers, I had an out: I was hearing things not yet measurable.

### Prelude

The Prelude MTS consists of a powered (850W), side-firing subwoofer housed in a curvaceously compact enclosure of veneered MDF; and a tall, narrow, sleek-looking aluminum tower containing a 1" dome tweeter set into a flared "waveguide" depression designed to smooth the integration of the midrange driver's upper response and the tweeter's lower, a 3" midrange cone, and four 5" mid/woofer cones. The drivers in the tower cross over at 300Hz and 2kHz at 24dB/octave, while the crossover to the subwoofer is set at 80Hz. A switch on the base of the Prelude tower allows it to be set to Full-Range or High-Pass. (I used the speakers set to Full-Range.)

The tower can be mounted atop the woofer, as mine was configured, or placed on a separate stand. The sub's facade features a brushed-aluminum accent designed to blend cosmetically with the tower. The versatile Prelude can easily be configured to accept preamp line- or speaker-level signals, and can be used in two-channel music or multichannel home-theater applications. There's a dedicated center-channel variant, and the tower can even be attached to the wall with special brackets.

Mounting the tower atop the woofer requires the removal of a cosmetic top plate, under which is a recessed pair of five-way binding posts, and a series of threaded holes for the actual mounting bracket and a pair of large guide pins. Dual male, gold-plated banana plugs provide the electrical connection between the woofer's binding posts and a set at the bottom of the tower. Dual banana plugs? I didn't much go for that; if I were buying Preludes, I'd find a better way to get the signal to the tower, and pronto.



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While Toole's associates set up and configured the speakers, we considered where to situate them in my new room. I'd already run RPG's excellent speaker-placement program when positioning the Amati Homages in the room. After plugging my room's dimensions (ca 19' by 15' by 8') into Toole's computer and running a different program—it essentially concurred with RPG's—we placed the Preludes in the same locations as the Homages: about 3' from the back wall, 2" from the side walls, 9' apart, and 8' from the listening position. I began with the speakers toed-in, but they sounded best to me firing straight forward, with the listener off-axis.

Incidentally, after looking at the room data, Dr. Toole declared my new room "nearly ideal." Coming from him, that was reassuring!

## Applying R.A.B.O.S.

Most rooms have a bass "bump" somewhere below 80Hz, which makes it difficult for designers to voice a speaker with full-range response, and for buyers to place it correctly. While careful speaker placement can sometimes reduce the bump, the placement may be impractical, or a poor choice for effective soundstaging.

Infinity has come up with R.A.B.O.S., a user-friendly, single-variable-frequency parametric equalizer that allows the buyer or dealer to find and "dial out" the bump. You're provided with a high-quality, battery-draining (keep spares handy), digital Sound Pressure Level meter, a test CD, a set of blank graphs, and a really ingenious clear-plastic Bandwidth Selector gauge to help you determine the Q of the bump you want to remove.

Using the meter and the CD's test tones, you plot the low-frequency response of the system in your room. Usually, one peak is dominant. (The excellent instruction manual also covers some common multi-peak scenarios.) Three small screwdriver-adjustable pots, accessible on the subwoofer's facade, allow you to select the peak's center frequency, approximate its bandwidth, and then flatten it electronically (footnote 1).

There's no guesswork involved. Once you've plotted the curve, used the Bandwidth Selector, and done some simple math, you refer to a chart that tells you how many clicks to turn each pot. You then re-run the test and plot the resulting curve, which now should indicate that the peak has been eliminated or greatly diminished. Finally, you set the subwoofer output level using another test tone (though you can set it any way you like), and you're done.

Unfortunately, FedEx drop-kicked one of the woofer boxes, which cracked the driver's cast basket and pulled the surround from the rim. It sounded worse than it looked, and it looked *bad*—though we didn't know to look until we heard it trying to reproduce 20Hz.

I was looking forward to demonstrating good analog to Toole, but it wasn't to be. We did run R.A.B.O.S. on the intact channel, and, with the exception of a pretty serious dip at 66Hz caused by an axial cancellation mode (plenty of 66Hz on either side wall opposite my listening position, but almost none where I sit!), the response from 20 to 100Hz was  $\pm 4$ dB with no EQ applied.

As Toole had predicted, my room was pretty much "ideal," and needed no EQ. He also predicted that the addition of the second woofer would smooth out the dip, and again he was correct. With both channels working, the response was 20-80Hz,  $\pm 3$ dB. I'm glad my new room measures up—if I ever move again, it'll be from here to the nursing home. I ain't moving my records again.

## Can You Measure Your Way to Success?

The Prelude MTS is the only loudspeaker I know of that provides the means for you to measure and adjust its bass performance to fit your listening room, and in terms of low-frequency extension in *my* room, it was a complete success.

But there's more than LF extension to good bass—low distortion, for one, and high volume without dynamic compression for another. Getting quality 20Hz performance out of the Prelude's rather small sealed box requires lots of power and a rugged but light, stiff-coned driver. The trapped air is going to fight the driver; power can overcome the resistance, but if the cone isn't extremely rigid, it will flex and distort, especially given the long excursions required to move large amounts of air.

What did the trick was 850W of BASH amplification (love those acronyms) and the light, stiff, low-resonance C.M.M.D., tied to a hefty voice-coil/magnet structure. "We drive the *shit* out of it" was Toole's scientific explanation of how the small box could produce such prodigious, super-clean low bass. I knew it the first time I heard the foundation of this speaker. It wasn't overwhelming, just *there*. It *rocked* when it was supposed to, otherwise it shut up. The low bass was tuneful, supple, and in the right proportion.

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Footnote 1: While you can try to reduce peaks, you don't fill in dips. The latter are usually due to cancellation between two interfering sounds. If you try to fill in a dip by pumping more power into the room at that frequency, the interference notch is unchanged but the system is now working much harder, to the detriment of its dynamic range.—JA



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Once I'd replaced the damaged woofer and re-run R.A.B.O.S., I headed directly to my bass-test LPs, among them "Baby You're a Rich Man," from the German pressing of the Beatles' *Magical Mystery Tour*; the title track of Davy Spillane's *Atlantic Bridge*; "Lazy Sunday Afternoon" from Small Faces' *Ogdens' Nut Gone Flake*; "Django" from the Modern Jazz Quartet's *European Concert*; Saint-Saëns' "Organ" Symphony (Fremaux/City of Birmingham Symphony Orchestra, Klavier Records); and Classic Records' 45rpm edition of the Reiner/CSO recording of Mussorgsky's *Pictures at an Exhibition*.

The Prelude's bass performance was everything I'd hoped it would be, and more: deep and solid, yet not mechanical-sounding, overdamped, or thumpy—bass I could really *feel* in my gut. With R.A.B.O.S., the Prelude MTS stands a good chance of producing the same bass performance in a room that's less than ideal. Once you've heard this kind of low-frequency performance—especially if your room has an impossible-to-tame hump—you'll find it hard to do without. It rivals the bass produced by Aerial's much larger SW12 subwoofer, which costs \$5000.

The integration of subwoofer and tower was seamless, with an impressively smooth, clean, and natural sound overall. (The tower runs full-range, so don't be concerned about the deleterious effects of a high-pass filter.) The narrow-baffled tower disappeared, leaving an expansive, open, CinemaScopic sonic picture. The speakers produced solid, three-dimensional images that were believable, appropriately sized, and placed accurately across the stage. Even well off-axis, horizontal dispersion was remarkably smooth and extended.

The Prelude MTS was absolutely the smoothest overall performer I've yet heard. Even on the most familiar recordings, it revealed previously hidden details without edge or hyped-up highs. On disc after disc I heard studio tricks and reverb tails behind vocalists that I'd never known were there. More important, the Prelude revealed previously buried musical events consistently and with ease, while providing believable timbres all over the frequency map.

This speaker defined the difference between real "detail" and "bright" as no other has in my experience. At first I thought the highs were rolled-off and smoothed-out, but over time I came to realize that the Prelude revealed *more* detail and exhibited outstanding top-end extension while never sounding bright—unless the source material was. What were missing were the resonances and peaks that can give as false a sense of detail as turning up your TV's Sharpness control all the way.

Bad recordings sounded bad, good ones great. Hamhandedly equalized recordings sounded particularly lumpy: I could hear where the engineer had inserted his bumps because the speaker itself had so few. The Prelude was chameleon-like, sounding sweet on warm, natural-sounding recordings like the stunning *Make Way for Dionne Warwick*, and brash on the hard ones. (Find an original silver/red Scepter pressing of *Make Way* and hear "Walk On By" as you never have before!)

One thing this speaker had in spades on *every* recording I played was rhythmic "togetherness." No matter how hard I pushed it, the Prelude MTS had the Linn/Naim pace'n'rhythm thing down pat.

Was the Prelude without "character"? No. After I'd listened to at least 100 CDs and LPs, it was clear that there were two identifiable but very small colorations: a slight upper-midrange accent (probably around the midrange/tweeter crossover point) that imparted a slightly forward quality to the overall sound; and a slight thickness to vocalists' sibilants that just couldn't have been on every recording of every vocalist I played. But I really struggled to find flaws in what I'm sure will be prove to be textbook measured performance. (Though I've been wrong before...)

I drove the Prelude's 90dB-efficient tower section with three different amplifiers: the [Musical Fidelity Nu-Vista 300](#), which outputs 600W into 4 ohms; the KR Enterprise VT8000 MK; and, for a very short spell, a vintage Dyna Stereo 70 I'd just had retubed. The Nu-Vista drove the Preludes to extremely high SPLs without strain or dynamic compression. I played the Stones' "Can't You Hear Me Knocking," from Mobile Fidelity's pressing of *Sticky Fingers*, which has awesome bass extension. Clocking 106dB peaks, the sound was open, easy, and detailed. The bass, of course, shook the house, but it was controlled, and not at all compressed. If you think MoFi's mastering is thin, or bass-heavy, or antiseptic, I think you're blaming the messenger. It's your system.

The KR's, seeing a flat, 4 ohm load, sounded cleaner and more extended than I'd ever heard them, and their slightly softer, harmonically richer top, coupled with the powered sub, created a fabulous sound. As did the Dyna Stereo 70/Prelude combo. This high-tech speaker proved to be a tube amp's best friend. Think of it: a transducer so sonically and electrically neutral that it can reliably show up colorations in electronics! But think, too, of the flexibility: with 850W, the bass is covered. For everything above that, all you have to supply is power for a 90dB-sensitive easy-to-drive, flat 4 ohm load.



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The "perfect" speaker? I'm not saying that. Not everyone will cotton to hearing the inner workings of recordings so ruthlessly exposed. Not everyone will want a loudspeaker that isn't inherently "warm," that doesn't slap a happy face on a music library. And I'm not convinced that the Prelude MTS can match the airiness, transparency, and "palpability" of some other speakers—though all of those attributes may well be colorations.

The Prelude MTS had balls and a mind, but I had a hard time finding its soul—which could be precisely what Allan Devantier and Floyd Toole intended. After all, the *recording* should provide the soul. Whether a speaker should inject "soul" because too many recordings don't is something you'll have to determine for yourself when you hear the Prelude MTS.

And you should. I enjoyed every minute I listened to my pair—as I enjoy the Amati Homages, which can't compete with the Preludes in some respects and are far less than perfect, but which exert a pull on me I'm not sure science can explain.

## Nuisance Variables

In a paper published in the *Journal of the Audio Engineering Society* (Vol.33 No.1/2, 1985), Floyd Toole discusses "sources of variability" in scientifically conducted "subjective" listening. I'll briefly rip through these "nuisance variables," as he calls them, as they relate to this decidedly "nonscientific" review. Among the variables involving the physical environment are: the listening room, the loudspeaker positions, relative and absolute loudness, the program material, and electronic imperfections.

Toole passed judgment on my room and where the Preludes were placed. I used an SPL meter during my listening because the speakers produced such low distortion and were such smooth performers. I found myself inadvertently playing them far louder than I normally listen, which of course can skew one's perception of a speaker's performance with familiar recordings, especially in terms of high-frequency response. I did play thoroughly familiar material, however, and if measurements are the guide, the Nu-Vista 300 is pretty much "perfect." It's also a great-sounding amp. (I bought it.)

The second set of "nuisance variables" are more personal. Among them are the listener's familiarity with the task, his or her ability to judge sonic differences, hearing acuity, and relevant accumulated experience. I'll leave those to you.

## Conclusion

The Prelude MTS puts Infinity back on the audiophile map. The speaker's sonic and (I'm sure) measured credentials change the loudspeaker playing field. It offers exceptional performance in all important operating parameters: it's user-friendly; it has a full, exceptionally flat frequency response with outstanding dispersive characteristics, unlimited dynamics, high SPLs, and vanishingly low levels of audible distortion; and it has superb imaging and soundstaging plus rhythmic *swing*. It's a transducer that behaves almost like a piece of electronics.

When you consider the amount of high technology packed into the Prelude, the level of performance it provides, the amount of R&D that must have gone into its development, and the 850W powered sub, \$8000/pair seems a price only a multinational corporation could afford to ask. While the Prelude will not please all ears (what speaker does?), all ears should experience this amazing performer. With the Prelude MTS, Infinity has created a loudspeaker destined to become a classic.



# Infinity Prelude MTS loudspeaker Specifications

## Sidebar 1: Specifications

**Description:** Modular four-way moving-coil loudspeaker (three-way tower with powered subwoofer).

**Prelude MTS tower:** Drive-units (all ceramic-aluminum matrix): 1" dome tweeter, 3"-cone midrange, four 5"-cone midbass. Crossovers: 300Hz, 2kHz, 24dB/octave. Frequency response: 80Hz-22kHz,  $\pm 3$ dB; 100Hz-20kHz,  $\pm 1.5$ dB. Nominal impedance: 4 ohms,  $\pm 1$ dB. Sensitivity: 90dB/2.83V/1m. Power requirements: 25-500W.

**Dimensions:** 37" H by 6" W by 7" D. Weight: 32 lbs.

**Prelude MTS powered subwoofer:** Drive-unit: 12"-cone ceramic-aluminum matrix. Maximum amplifier output: 850W continuous, 2600W peak (into 8 ohms, 20-100Hz, <0.1% THD). Frequency response: 23-80Hz,  $\pm 3$ dB; 30-80Hz,  $\pm 1.5$ dB. Crossover frequency: 80Hz.

**Dimensions:** 20" H by 9" W by 20" D. Weight: 60 lbs.

**Prelude MTS System:** Frequency responses: 23Hz-22kHz,  $\pm 3$ dB; 30Hz-20kHz,  $\pm 1.5$ dB. Impedance: 4 ohms,  $\pm 1$ dB. Sensitivity: 90dB/2.83V/1m. Recommended amplifier power: 25-500W. Second- and third-order harmonic distortion: 20Hz-20kHz at 95dB SPL,  $\pm 1$ %. Crossover frequencies: 80Hz, 300Hz, 2kHz, 24dB/octave.

**Serial numbers of units reviewed:** N/A.

**Price:** \$8000/system (\$10,000 2002 price). Approximate number of dealers: not known.

**Manufacturer:** Infinity Systems, Inc., 250 Crossways Park Drive, Woodbury, NY 11797. Tel: (800) 553-3332, (818) 407-0228. Fax: (818) 993-7614. Web: [www.infinitysystems.com](http://www.infinitysystems.com).



# Infinity Prelude MTS loudspeaker Associated Equipment

## Sidebar 2: Associated Equipment

**Analog source:** Simon Yorke, SME 10 turntables; Graham 2.0, Immedia RPM2, SME IV.Vi tonearms; EMT TU-3 Geyger, Lyra Parnassus D.C.t, Lyra Evolve 99, Transfiguration Temper Supreme, Spirit cartridges.

**Digital source:** Audio Alchemy DDS•Pro transport, EAD DSP 9000 Mk.3 D/A processor.

**Preamplification:** Ayre K-1 preamplifier, Audio Research Reference phono stage.

**Power amplifiers:** Musical Fidelity Nu-Vista 300, KR Enterprise VT8000 MK, Dyna Stereo 70.

**Cables:** Interconnects: Yamamura Millennium 6000, Electra Glide, Silver Audio, Wireworld Gold Eclipse. Phono cables: Kimber TAK Silver, Silver Audio Silver Breeze, Hovland, Cardas Neutral Reference DIN/RCA phono cables. Speaker cables: Yamamura Millennium 6000, QED Silver Spiral. AC cords: Yamamura Quantum, Electra Glide, JPS Labs.

**Accessories:** Sounds of Silence Vibraplane active isolation platform, Finite Elemente Pagode and Zoethecus equipment stands, Symposium Rollerblocks, Vibrapods, A.R.T. Q dampers, D.J. Kasser Black Diamond Racing cones, Walker Valid Points, Harmonix feet, Shakti Stones, Shakti On-Lines, ASC Tube Traps, RPG BAD and Abffusor panels.—**Michael Fremer**



# Infinity Prelude MTS loudspeaker Measurements

## Sidebar 3: Measurements

The first Infinity Prelude speaker *Stereophile* reviewed, the slightly larger P-FR was astonishingly sensitive, at an estimated 95.5dB(B)/2.83V/m. The MTS clocked in at 90dB(B)/2.83V/m sensitivity as specified, which is still significantly higher than average—the speaker will produce high levels with only a few amplifier watts.

The impedance, however, averages 4 ohms, as can be seen from fig.1, though the electrical phase angle is usefully low. The curve remaining below 6 ohms in the bass was taken with the speaker set to Full-Range operation. With the tower set to High-Pass, the impedance rises with dropping frequency in the bass due to the insertion of a series capacitor. This does result in a more demanding combination of 5 ohms magnitude and 45 degrees phase angle at 95Hz, but a good 4 ohm-rated amplifier or receiver should be able to take this in stride. As MF put it, this speaker is a "tube amp's best friend."

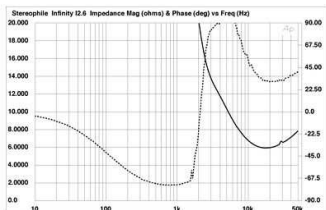


Fig.1 Infinity Prelude MTS, electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

Other than the glitch at a very high 28kHz due to the metal-dome tweeter resonance, the impedance curves are free from wrinkles that would otherwise indicate the presence of mechanical resonances. But fastening a simple accelerometer made from piezoelectric plastic tape to the center of one of the curved metal sidewalls gave the cumulative spectral-decay plot shown in fig.2. One strong mode can be seen at 480Hz. This might well be high enough in both frequency and Quality Factor (Q) not to degrade the speaker's sound—as a rule of thumb, the higher both these parameters, the less audible any effect of the panel resonance will be. This resonant mode is very high in level, though it should be noted that I took this measurement with the tower supported on upturned cones rather than on the base module, to allow what resonances are present to develop to their fullest extent. And the radiating area of the panel is very small, which will also minimize the mode's audibility. Which is presumably why MF didn't notice any midrange congestion or lack of clarity.

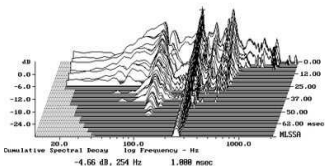


Fig.2 Infinity Prelude MTS, cumulative spectral-decay plot calculated from the output of an accelerometer fastened to the curved sidewall adjacent to the tweeter. (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz.)

The Prelude P-FR had a superbly flat response on-axis. The Prelude MTS's response, averaged across a 30 degrees horizontal window on the tweeter axis, is almost as flat (fig.3, right-hand trace). A big peak due to the tweeter resonance can be seen just below 30kHz, but this is way above the range of human hearing. To the left of this graph are three traces: The rightmost is the complex sum of the woofers and midrange unit response set to High-Pass, measured in the nearfield. Setting the switch to Full-Range decreases the rate of rolloff by 6dB/octave, giving a low-frequency response that's 2dB down at 100Hz rather than the 124Hz shown here. This would actually give a better crossover to the powered subwoofer, the response of which, again measured in the nearfield, is the leftmost trace in fig.3. For completeness' sake, the middle trace in the graph is the response of the subwoofer taken without its low-pass filter in circuit.

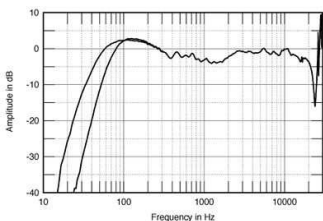


Fig.3 Infinity Prelude MTS, anechoic response on-axis at 50°, averaged across 30 degrees horizontal window and corrected for microphone response, with the complex sum of the nearfield midrange and woofer responses (set to High-Pass) and the nearfield responses of the subwoofer, with and without its low-pass filter.





# Infinity Prelude MTS loudspeaker Measurements part 2

As expected from its very narrow front baffle, the Prelude's horizontal dispersion (fig.4) is wide and well-controlled. With the small radiating diameter of the midrange unit, there is no hint of the usual "flare" at the bottom of the tweeter's passband, which usually gives rise to accusations of brightness. The response to the sides of the tweeter axis drops a little more than usual above 7kHz or so, due to the flared waveguide around the tweeter affecting its directivity. This might make the speaker sound slightly mellow in very large rooms.

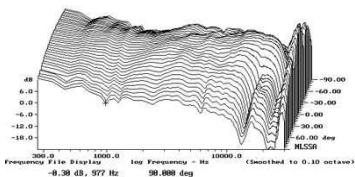


Fig.4 Infinity Prelude MTS, lateral response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 90 degrees-5 degrees off-axis, reference response, differences in response 5 degrees-90 degrees off-axis.

This off-axis, top-octave narrowing of the tweeter's output can also be seen in the vertical plane (fig.5). With the asymmetrical tweeter-midrange layout, the speaker's designers have sensibly arranged for the inevitable crossover-range suckout to appear well above the tweeter axis. And if you compare this graph (which shows only the differences) with fig.3, it looks as though the slight notch in this region actually fills in if you sit a few degrees below the tweeter axis. But sit very low, and the low treble gets a bit peaky.

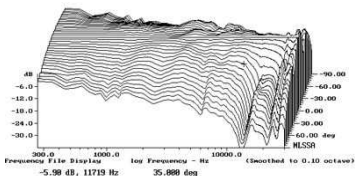


Fig.5 Infinity Prelude MTS, vertical response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 45 degrees-5 degrees above axis, reference response, differences in response 5 degrees-45 degrees below axis.

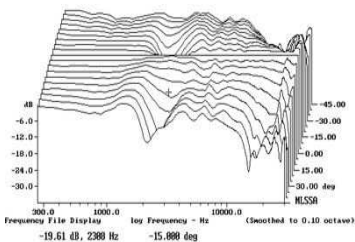


Fig.6 Infinity Prelude MTS, tweeter-axis step response at 50° (5ms time window, 30kHz bandwidth).

In the time domain, the MTS's step response indicates that all six of the tower's drive-units (four woofers, one midrange, one tweeter) are connected with positive acoustic polarity. The cumulative spectral-decay plot on the tweeter axis (fig.7) is superbly clean, without a hint of resonant behavior from the drive-units other than the ultrasonic tweeter resonance.

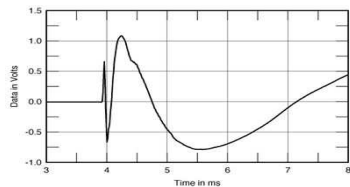


Fig.7 Infinity Prelude MTS, cumulative spectral-decay plot at 50° (0.15ms risetime).

As with Infinity's earlier Prelude models that I have measured, the MTS is an extremely competent design in engineering terms. The mystery to me was that I could not find anything that directly correlated with Michael's finding of occasional sibilance, though I do wonder if the upper-midrange forwardness he noted was connected with the speaker's behavior in the vertical plane.

For those interested in how the Prelude MTS performs in a home-theater setting, a review by Joel Brinkley appeared in the July/August 2000 issue of *Stereophile Guide to Home Theater*.—John Atkinson