

# AUDIO

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Prelude To Perfection

## Surround EX

THE NEXT DIMENSION  
IN HOME THEATER

PRELUDE TO  
PERFECTION  
Infinity's *NEW*  
Flagship Speakers

MULTICHANNEL  
MUSCLE AMPS  
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STEREO SUPREMO!



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FEB/MARCH 2000

ART AND SCIENCE MEET.  
FALL MADLY IN LOVE.  
AND MAKE BEAUTIFUL  
MUSIC TOGETHER.

Introducing Prelude™ MTS from Infinity. Rarely has sonic accuracy been realized in a form so beautiful. It is indeed a remarkable meeting of art and science.

Prelude MTS includes more than a dozen cutting-edge transducer technologies, most notable of which is Infinity's own Ceramic Metal Matrix Diaphragms (C.M.M.D.™). They are three times as rigid as other cones, which results in minimized internal resonances and maximized sonic accuracy.

Brushed and anodized aluminum extrusions contain midbass, midrange and high-frequency drivers which are mounted atop a real-wood veneer, 850-watt powered subwoofer. The towers can be used as side or surround channels along with the center channel to create a complete multichannel music and theater system.

Prelude MTS adapts well to any decor and, through our innovative Room Adaptive Bass Optimization System (R.A.B.O.S.™), bass output can be electronically tailored to the unique dimensions and characteristics of any listening room.

Immerse yourself today in the sonic art and science that is Prelude MTS from Infinity. Contact us at 1-800-553-3332 or [www.infinitysystems.com](http://www.infinitysystems.com).



COREY GREENBERG

## Infinity Prelude MTS Speaker System



Photos: Michael Groen

**W**ith all the different cooks stirring the broth at Infinity over the years, it's no wonder Harman's high-end speaker brand has had its share of ups and downs.

Founder Arnie Nudell made the company's name on the backs of gigantic, woolly mammoth-like speakers whose bass-heavy sound always struck me as being tailor-

made for the testosterone-challenged. Post-Nudell, other designers came and went, leaving behind a trail of tears culminating in the infamous, unlistenable Compositions system of several years back, which finally prompted Harman to clean house and start from scratch.

Today, Infinity's chief speaker designer is a young Canadian engineer named Allan Devantier, a protégé of Dr. Floyd E. Toole,

### INFINITY

#### PRELUDE MTS TOWER

**Rated Frequency Response:** 80 Hz to 22 kHz,  $\pm 3$  dB.

**Rated Nominal Impedance:** 4 ohms.

**Rated Sensitivity:** 90 dB/1 watt/1 meter.

**Recommended Amp Power:** 25 to 500 watts.

**Dimensions:** 37 in. H x 6½ in. W x 7½ in. D (94 cm x 16.5 cm x 19.1 cm).

**Weight:** 60 lbs. (27.3 kg) each.

**Price:** \$3,200 per pair; \$8,000 per pair with two MTS Subwoofers.

#### PRELUDE MTS CENTER CHANNEL

**Rated Frequency Response:** 80 Hz to 22 kHz,  $\pm 3$  dB.

**Rated Nominal Impedance:** 4 ohms.

**Rated Sensitivity:** 89 dB/1 watt/1 meter.

**Recommended Amp Power:** 25 to 500 watts.

**Dimensions:** 6½ in. H x 23 in. W x 7½ in. D (16.5 cm x 58.4 cm x 19.4 cm).

**Weight:** 30 lbs. (13.6 kg) each.

**Price:** \$1,000.

#### PRELUDE MTS POWERED SUBWOOFER

**Rated Frequency Response:** 23 to 80 Hz,  $\pm 3$  dB.

**Crossover Frequency:** 80 Hz.

**Maximum Amplifier Output:** 850 watts into 8 ohms, 20 to 100 Hz, 0.1% THD.

**Dimensions:** 20 in. H x 20½ in. W x 9½ in. D (50.8 cm x 52.1 cm x 24.1 cm).

**Weight:** 100 lbs. (45.5 kg) each.

**Price:** \$2,400 each.

**System Price:** \$12,000 for four towers, center-channel speaker, and two subwoofers.

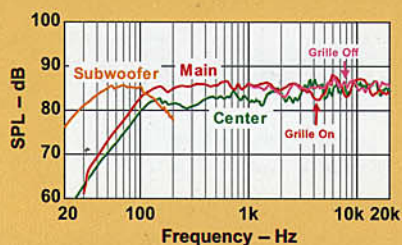
**Company Address:** 250 Crossways Park Dr., Woodbury, N.Y. 11797; 800/553-3332; [www.infinitysystems.com](http://www.infinitysystems.com).

## TEST RESULTS

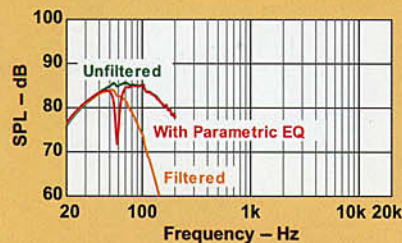
**F**igure 1A blends quasi-anechoic frequency response measurements taken by True Technologies of the Infinity Prelude MTS Subwoofer (with its low-pass filter off), Prelude MTS Center Channel, and Prelude MTS Tower main speaker (grille on and grille off). These curves are strikingly smooth and free of anomalies, especially the Tower's grille-off curve (it's obvious this speaker should be listened to that way). The curves in Fig. 1A indicate that the MTS Prelude system should be capable of wide-bandwidth, natural, uncolored sound reproduction from the low bass to the high treble. (In their linearity, these curves remind me of some of the best response curves I saw emerge from the anechoic chamber at Canada's National Research Council when I was taking measurements of speakers there and conducting blind listening tests for a Canadian audio magazine.)

Frequency response of the sealed-box Prelude MTS Subwoofer (Fig. 1B) is smooth and extended. At 50 Hz, the sub's response begins to gradually roll off and is 5 dB down at 30 Hz and only 8 dB down at 20 Hz. With normal boundary reinforcement in a listening room, the MTS subs should provide usable output down to almost subterranean frequencies. As you can tell from the curve taken with parametric equalization, the R.A.B.O.S. circuitry inserts a very sharp, deep notch with maximum "Q" at, in this case, 60 Hz (the frequency, width, and depth are all selectable). With the sub's low-pass filter engaged, response begins to decline steeply at about 60 Hz and is 10 dB down at 100 Hz.

The MTS Tower's horizontal off-axis dispersion (Fig. 2A) is superb; within the  $\pm 15^\circ$  listening window, upper-octave response extends well beyond 15 kHz and is as smooth as the on-axis curve. Even at greater off-axis angles, response diminishes by only a few dB. No question that the Towers should throw a spacious and three-dimensional soundstage. The speaker's vertical off-axis dispersion (Fig. 2B) isn't quite as consistent as its lateral radiation. You can see effects of driver cancellation

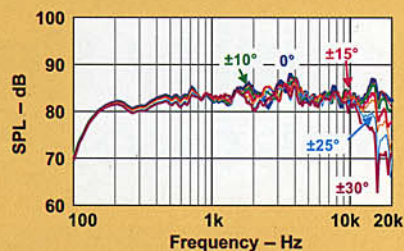


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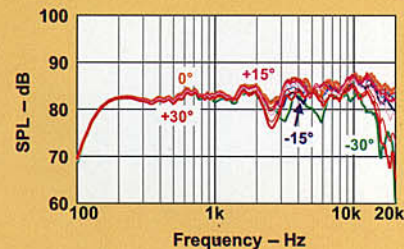


B

Fig. 1—On-axis frequency responses of subwoofer, center-channel speaker, and main-channel speakers (A) and of subwoofer alone (B).

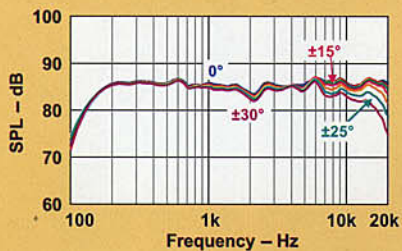


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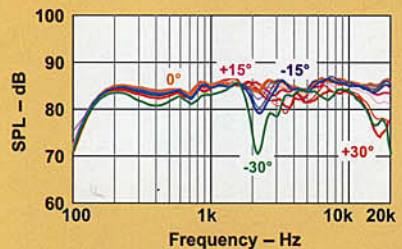


B

Fig. 3—Horizontal (A) and vertical (B) off-axis frequency responses of MTS Center speaker.



A

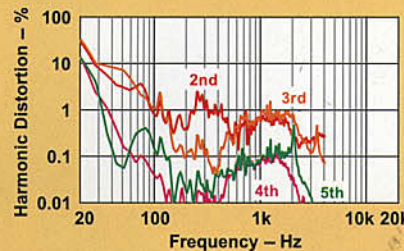


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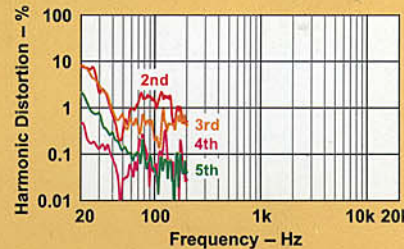
Fig. 2—Horizontal (A) and vertical (B) off-axis frequency responses of MTS Tower (main-channel) speaker.

between 1.8 and 4 kHz, although things smooth out again at higher frequencies, with excellent dispersion to about 12 kHz.

The MTS Center speaker's horizontal off-axis dispersion (Fig. 3A) isn't quite as smooth or as uniform as the Tower's. Nevertheless, it holds up well to a bit past 10



A



B

Fig. 4—Harmonic distortion at 100 dB SPL for MTS Tower (A) and MTS Subwoofer (B).

kHz. You can see a few small irregularities between 1.5 and 2 kHz and a rising response that reaches a minor peak at 4 kHz. In the vertical domain (Fig. 3B), the bump at 1.8 kHz remains, as does the one at 4 kHz. Still, if you compare the overall shape of these off-axis responses to those of many

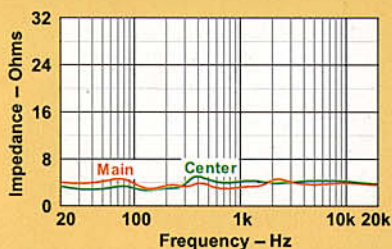


Fig. 5—Impedance magnitude.

other speakers, the Prelude MTS Center and Tower speakers emerge as winners.

Living up to Infinity's goal of keeping all harmonic distortion components to 1% or less at a very loud 100 dB SPL is a tall order. As you can tell from Fig. 4A, however, the Prelude MTS Tower meets that heady criterion with only one minor excursion, at 250 Hz, to about 3% second-harmonic distortion. You can ignore the Tower's distortion below 80 Hz because that's where the MTS Subwoofer takes over; its distortion components (Fig. 4B) are, apart from the second harmonic at about 4%, exceptional. Third, fourth, and fifth harmonics average about 0.8% or less down to 30 Hz; even at 20 Hz, second and third harmonic distortion are less than 10%, with fourth and fifth components barely cracking the 1% level. All this points to the potential for wonderfully clean, deep bass at concert-hall levels—which, of course, is an essential ingredient of true high-fidelity music reproduction.

The MTS Tower and Center Channel impedance curves (Fig. 5) are so smooth and uniform that they leave me with almost nothing to say, except that I can recall only one other speaker in recent years that even approached this ideal of a perfectly linear 4-ohm impedance across the entire audio spectrum. Splendid!

On the basis of these lab results, it's indisputable that Infinity devoted an enormous engineering effort in designing its Prelude MTS system. Seldom would I be moved to call speakers "beautifully engineered" (given the intrinsic liabilities of most transducers), but in this case the mix of science and art has yielded a system of the highest caliber.—Alan Lofft

Harman's V.P. of engineering. Devantier has wiped Infinity's slate clean and instituted the same kind of rigorous, science-minded approach to loudspeaker design spearheaded by Toole at Canada's National Research Council. Devantier's first all-out assault on a cost-no-object, state-of-the-art system is the subject of this review, the \$12,000 Prelude MTS.

The heart of this system is the Prelude MTS Tower, a three-way, six-driver speaker. For stereo-only systems or the main front speakers in a surround setup, the MTS Towers are configured as full-range speakers with the addition of a pair of Prelude MTS

**"Even, clear, and amazingly fast" is my thumbnail sketch of the Prelude MTS system's sound.**

Powered Subwoofers, each of which houses a heavy-duty, 12-inch driver with a high-temperature, 3-inch voice coil. The driver is side-mounted in a deceptively slim, curved-wood sealed enclosure that also houses an 850-watt BASH amplifier. The sub can take its feed from the incoming speaker-level signal or via a separate, line-level subwoofer output from your preamp or receiver.

The Prelude MTS Tower, which handles frequencies above 80 Hz, is solid, anodized aluminum and screws down tightly to the front of the MTS Subwoofer. (The Tower is available separately, without the sub, for surround-channel duty. It can be swivel-mounted to the wall or bolted to optional, sand-fillable floor stands, which I used.) The Tower houses six drivers in a vertical array: a quartet of 5¼-inch woofers, a 3½-inch midrange, and a 1-inch dome tweeter sunk behind a shallow, horn-like waveguide designed to match its low-end dispersion with the midrange's for flatter off-

axis response (one of the cornerstones of the NRC school of design, shared by such illustrious grads as Paradigm and PSB). Except for the MTS Center Channel, the Preludes come supplied with spikes to anchor the speakers in place.

All of the drivers in the Prelude MTS system, including those in the subwoofers, are new designs custom-manufactured by Harman. They feature a new material, C.M.M.D. (Ceramic Metal Matrix Diaphragm), which consists of a deep-anodized ceramic coating on both sides of an aluminum cone or dome. Infinity claims the C.M.M.D. process endows the matte silver-colored drivers with ultra-low mass and ultra-high rigidity. (The company's distortion measurements are some of the lowest I've seen for real-world speakers, more akin to amplifier specs).

The timbre-matched and magnetically shielded Prelude MTS Center Channel looks like a smaller version of the MTS Tower tipped on its side. The 3½-inch midrange is on top of the 1-inch tweeter; they are flanked by a pair of 5¼-inch woofers. This speaker comes with a pretty trick metal stand that lets you tilt it up or down and adds another layer of magnetic shielding to help prevent screen purpling on direct-view TVs (such as Sony's high-end WEGA monitors, which are more sensitive than most to speaker-magnet interference).

The silvery Prelude Towers have rather flimsy plastic-frame grilles covered with a silver-colored woven fabric; even Infinity doesn't take the grilles too seriously, recommending they be left off for the most accurate sound. I mean, look at these things; it's not as if they're going to fade into the background if you stick the grilles on! And, yes, they definitely muffle the sound enough to be left in the packing boxes for good unless you've got ceramic-licking monkeys for pets.

The Prelude MTS system is full of innovative, cutting-edge technology,

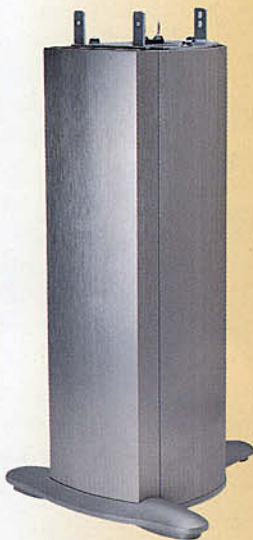


**An SPL meter, to adjust bass EQ, comes with the Prelude system.**

## STAND & DELIVER



**For surround-channel duty, the MTS Tower can be bolted to optional, sand-filled stands.**



but by far its most interesting feature is R.A.B.O.S. bass equalization. Basically an adjustable parametric equalizer operating at 100 Hz and below, R.A.B.O.S. (Room Adaptive Bass Optimization System) nulls out the main low-frequency room mode, or "love hump," that prevents truly accurate bass response in every real-world listening room. With this system, Infinity bundles a custom-designed SPL meter (the popular \$30 Radio Shack meter doesn't have flat enough low-end response, just in case—like me—you were wondering) and a test CD with bass warble tones. This lets you find the optimum settings for frequency, notch width, and bass cut to dial in on the Towers' recessed front-panel trimpots. A word of caution: The supplied SPL meter sucks 9-volt batteries like Ron Jeremy's fluffer. Devantier says it's a necessary trade-off in or-

der to get a high degree of accuracy from the meter. I can tell you that a brand-new alkaline lasted only 40 minutes or so in this thing, so be sure to have a spare or two on hand when you set up these speakers.

I listened to the Prelude MTS system in my He-Man reference rig. The speakers were driven by a Bryston 9B-ST 120-watt, five-channel amplifier. I used Meridian's 861 A/V preamp and 800 DVD/CD player, along with a Sony SCD-777ES SACD player. (I bypassed the all-digital Meridian preamp for SACD listening by using a passive preamp jacked directly into the Bryston amp.) Canare 75-ohm digital/video cabling and L-2B2AT analog interconnect and Kimber Kable 8TC speaker wire hitched everything together, and all electronics—including the amps of the two Prelude MTS Subwoofers, were plugged into API Power-Pack noise filters.

Even, clear, and amazingly fast—that's my thumbnail description of the Prelude MTS system's sound. Even though the main-channel Tower/Subwoofer combos are four-way designs with a whopping seven drivers per side, they sound instead like really, *really* good two-way mini-monitors, except with killer bass. Lots of tower speakers distort image size, lending everything the same "Big Tex" character—"Howdy, pod'ner, git a load of mah 10-foot-tall maracas!" Not the Preludes. Music sounds like it's coming from a pair of point sources at about ear height, and the only fleshing-out the speakers provide is in bass extension, which is frightening in both ferocity and precision. **Voices, in particular, sound totally realistic** in terms of size and shape. My workhorse vocal demo CD, The Fairfield Four's *Standing in the Safety Zone*

(Warner Bros.) sounded so natural and lifelike on the Infinities I wound up listening to the whole CD all the way through, something I haven't done in years. While most big multidriver towers sound like mutant P.A. systems, the Prelude MTS keeps it real.

The MTS Towers are definitely at their best when firing straight ahead rather than toed-in toward you. Devantier says he designed them that way on purpose, because they'd look awkward tilted in, with their woofer-asses jutting out to each side like a couple of splayed clown feet. Me, I would've put up with the awkward-looking arrangement if the sound were better, but it wasn't: The best-looking arrangement was also the best-sounding. The Prelude Towers were clearly designed to be listened to slightly off axis, and that's where I heard the most clearly focused imaging, the smoothest response, and the closest timbre match with the Prelude Center Channel.

The Prelude MTS system's tonal balance was extremely smooth and even. The speak-

**The Prelude subs served up the deepest bass I'd ever heard in my living room.**

ers tended to sound very different from disc to disc, always a good sign that a speaker is fundamentally accurate and not imposing its own character on the music. In direct comparison with my NHT 3.3s (\$4,300/pair), the Preludes' midrange was a bit less forward, and their low treble was more apparent, pushing even the tiniest recorded detail to the forefront. Whether it was differences in tonal balance or the ultra-low-distortion C.M.M.D. drivers, **I heard details in familiar CDs and DVDs that I'm just not used to hearing quite so easily.** My own guitar work on Archer Prewitt's *White Sky* (Carrot Top Records) was so clearly rendered that I could hear all the little guitar-pick inflections, string scrapes, and other slop that's thankfully obscured by most speakers I hear this CD on. (You can download MP3 samples of this disc, in-

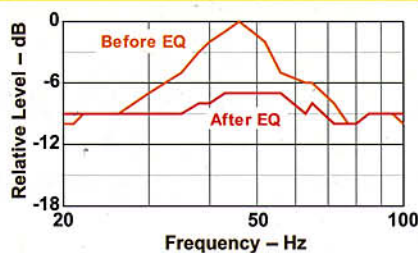
cluding a bit of my solo on the song "Motorcycle," from [www.cdnw.com](http://www.cdnw.com).)

The Prelude Towers' clear and present character almost works against them when they're used in the surround channels. The sound field that the subwooferless Towers created in their surround-channel role was much crisper and more distinctly defined than I'm used to hearing from the NHT 3.3s I usually stow there, and I have to admit it was a little distracting at first. The Infinity speakers tended to sound almost *too* discrete, so I had to tinker with placement to get them to gel with the rest of the system. I finally found that spacing them far apart, a few feet behind the couch, and aiming them directly at each other was best. It made for the best trade-off between surround presence and integration with the front sound field. The surrounds then presented a seamless, hyper-focused bubble of sound from every DVD I threw at them.

And the bass? Oh, mammy! The Prelude MTS Subwoofers served up the deepest, tightest, scariest bass I've ever heard in my living room, bar none. I've had some monster subs through these parts, and my reference NHTs have built-in, 12-inch subs that go toe-to-toe with the best of them. But I'm telling you, all bets were off when I fired up the Preludes. Even before I used R.A.B.O.S. to flatten the response, the deceptively slim Infinity subs redefined my expectations of how deep and supremely tight the low end can sound in my loft.

But it was after going through the R.A.B.O.S. optimization process that the

MTS Prelude system's low end went from hugely impressive to utterly astonishing.



*Dialing in R.A.B.O.S. quelled a huge, 46-Hz peak in the author's home.*

From start to finish, measuring the bass response in my room with the supplied SPL meter and then adjusting the three controls on the front of the subs took all of 20 minutes. And it made all the difference in transforming the bass performance of the Prelude subs from great to insane. (Look at the graph to see my in-room bass response, before and after R.A.B.O.S.)

It's one thing to go down to 20 Hz with all kinds of love humps and peaks in the response muddying things up across the bass range; it's something else entirely to hear this kind of extension and power with truly flat response from 100 to 20 Hz. Thanks to R.A.B.O.S., electric-bass lines, such as Willie Weeks' epic Fender flash on the classic *Donny Hathaway Live* CD (Sony Japan) suddenly sounded much more even all the way up and down the scale, and I heard all kinds of subtleties in the playing that don't usually present themselves on most subs. And Paul McCartney's fattened-up bass lines on the *Yellow Submarine* DVD had never before

sounded so clearly defined and pulsing; for the very first time in my listening room, every note was at the same volume as the next.

The MTS Prelude system's low end was just as fast and nut-tight as those of the most overdamped "music" subs (e.g., the Meridian and REL jobs) I've had through here, but when it came time to rock the house with the sub-bass wallops during the 'Nam re-creation scene at the end of *Rushmore*, the sheer unrestrained power unleashed by the Prelude subs literally and physically took the room like no other sub I've ever tried. When I originally eyeballed these arty-looking, curved-wood subs, I thought I'd need four of them to do any real damage, not just the lone pair that Infinity sent. But, ye gods, was I wrong. The combination of the custom, 12-inch C.M.M.D. drivers and the 850-watt BASH amplifiers are a bass freak's wettest, woolliest dream.

Infinity's Devantier described his goal for the Prelude MTS system as being "Bang & Olufsen looks with high-end sound quality." I would say he's succeeded mightily on both counts. Visually as well as sonically, these speakers make as bold a statement as I've seen audio's high end produce in quite a few years. The Prelude MTS is far and away the finest-sounding loudspeaker system ever to wear the Infinity badge—highly recommended.

**A**

**- Corey Greenberg, *Audio*, February/March 2000**

**“ Even, clear, and amazingly fast is my thumbnail sketch of the Prelude MTS system’s sound.”**

**“The Prelude subs served up the deepest bass I’d ever heard...”**

**“Infinity subs redefined my expectations of how deep and supremely tight the low end can sound in my loft.”**

**“The Prelude MTS is far and away the finest-sounding loudspeaker system ever to wear the Infinity badge – highly recommended.”**

**- Alan Lofft, *Audio*, February/March 2000**

**“Seldom would I be moved to call speakers “beautifully engineered...”**

**“...the mix of science and art has yielded a system of the highest caliber.”**



**H** A Harman International Company