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NHT Classic Three LOUDSPEAKER

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NHT Classic Three loudspeaker

DESCRIPTION Three-way acoustic-suspension bookshelf loudspeaker. Drive-units: 4" aluminum-dome tweeter, 2" aluminum-dome midrange cone, 6.5" polypropylene cone woofer. Crossover frequencies: 800Hz (symmetrical 12dB/octave), 3.2kHz (symmetrical 18dB/octave). Frequency response: 45Hz-20kHz \pm 3dB. Sensitivity: 86dB/2.83V. Nominal impedance: 8 ohms.

DIMENSIONS 13.75" (350mm) H by 7.5" (190mm) W by 10.375" (265mm) D. Weight: 17 lbs (7.7kg).

FINISHES High-Gloss Black, Special Dark.

SERIAL NUMBERS OF UNITS

REVIEWED 0100 000001-26, 0100 00022-26.

PRICE \$800/pair. Approximate number of dealers: 190.

MANUFACTURER NHT, 6400 Goodyear Road, Benicia, CA 94510. Tel: (800) 648-9993. Web: www.nhthifi.com.

When reviewing affordable speakers, it's critical to have benchmarks and comparisons for various price points. Inexpensive speaker designs are exercises in tradeoffs and compromises, especially for the least costly products. In all of my reviews, I try to compare the speaker in question with other designs close to the review sample's price, chosen from my list of previously reviewed speakers. From time to time, if a speaker particularly impresses me, I ask the manufacturer if I can keep the speakers around a while longer, so that it can serve as a comparison reference for a certain price point. That's not to say that any speaker I *don't* keep around is less desirable—there's just not enough room in my house to keep a sample of every speaker I like. An audio reviewer's wife puts up with enough as it is.

On the other hand, you can rest assured that any speaker I do keep for a long time is still here because its design continues to impress me, even as speaker designers continually raise the bar with newer, more revealing,

more cost-effective designs. And when a manufacturer informs me that a new design has replaced one of my benchmarks, I'm usually anxious to hear that attempt to supersede an excellent design.

One of those long-term references was NHT's SB3 (\$600/pair), a bookshelf model that I reviewed in the November 2002 *Stereophile* (Vol.25 No.11) and have kept around for comparisons ever since. It has recently been superseded by NHT's Classic Three (\$800/pair).

Innovating

The Classic Three is somewhere in the middle of NHT's new Classic line of two-channel and home-theater speakers, which range in price from \$400 to \$1800/pair. The Three actually bears no resemblance to the SB3, which it replaces. It's smaller, and unlike the acoustic-suspension SB3 two-way, the Three is a sealed-box, acoustic-suspension, three-way speaker with a 3/4" aluminum-dome tweeter, a 2" aluminum midrange dome, and a 6.5" polypropylene-cone woofer. The midrange and tweeter are ferrofluid-cooled and use neodymium magnets. NHT believes that three-ways now play a greater role

in their line because they provide broader dispersion and a higher dynamic range, which is more critical for the increasing popularity of multi-channel systems.

All Classic speakers have baffles twice as thick as their predecessor models, designed to reduce cabinet vibrations and improve transient response. The parabolic curve of the baffle around the midrange and tweeter is intended to smooth out the mid- and high-frequency responses for all listening positions, especially those off the tweeter axis. The midrange and tweeter in the Three are built with Neodymium Iron Boron magnets, which are placed inside a steel can as part of the speaker motor's magnetic circuit, resulting in a very low stray flux field. The Three's woofer frame is made from Bulk Molding Compound (BMC), which, containing no iron, does not attract magnetic flux nor cause the magnetic field to spread as

with a steel frame, eliminating, according to NHT, the need for additional shielding.

I was taken with the Classic Three's appearance. Smaller, more elegant, and less boxy-looking than the SB3, the Three has a slightly curved top and bottom. Two metal ridges screwed to the bottom of the speaker have a long, narrow rubber foot that resembles a windshield-wiper blade. The blades sat securely on my Celestion Si stands without the need to mess with any Blu-Tack. I heard a slightly more detailed sound with the Threes' grilles off, but no change in the tonal balance.

Listening

Usually, when I listen to an affordable speaker with a dead-neutral midrange, what I first notice is the speaker's ability to project vocal realism. The Classic Three, however, directed my initial attention elsewhere. The speaker's

three greatest strengths—its ability to render subtle, organic gradations of low-level dynamic information; its resolution of detail and ability to “disappear” while throwing a wide, deep soundstage; and its extended, detailed, airy, and delicate high frequencies—combined to create a startling level of realism with well-recorded acoustic works, particularly classical. James Boyk's recording of Mussorgsky's *Pictures at an Exhibition* (CD, LP, Performance PR-7) revealed a solo-piano performance that sounded light, delicate, and detailed, with a low-level dynamic realism that rivaled that of a live piano.

On George Crumb's *Quest* (CD, Bridge 9069), the slightly warm string bass was otherwise natural, with the requisite *thwack* on attacks, and a strong sense of the instrument's wood. Listening to this recording, however, I was transfixed by the percussion. The cymbals had a long, natural decay and sense of air, and

MEASUREMENTS

The NHT Classic Three's voltage sensitivity was significantly lower both than average and than specified, at an estimated 83dB(B)/2.83V/m. However, its impedance was generally higher, dropping below 6 ohms only in the lower midrange and above the audioband (fig.1). The minimum value was 4 ohms between 120Hz and 170Hz, but there is also a combination of 5.5 ohms and -46° electrical phase angle at 94Hz that will demand a goodly amount of current from the partnering amplifier.

The impedance traces are free from the small discontinuities that would imply the presence of cabinet vibrational resonances, and the Classic Three's cabinet was effectively braced. The only resonant mode I could find lay at 496Hz (fig.2), which is high enough in frequency not to affect sound quality, especially considering its low level and the panels' small radiating areas.

The peak of 27 ohms at 61Hz in the impedance plot indicates that this is the tuning frequency of the sealed cabinet, the frequency where the anechoic response is down 6dB. However, if you look at the woofer's nearfield

response, shown to the left of fig.3, the speaker's response actually appears to extend down to that frequency, due to the boost in the upper bass. Though BJR did remark on a slight upper-bass emphasis, this peaking is mainly due to the nearfield measurement technique;

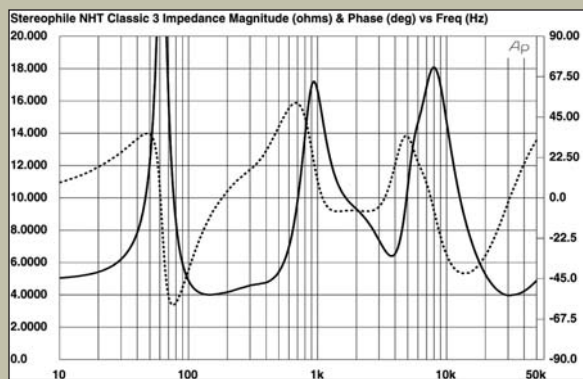


Fig.1 NHT Classic Three, electrical impedance (solid) and phase (dashed). (2 ohms/vertical div.)

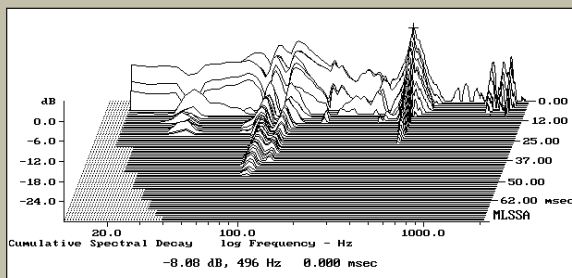


Fig.2 NHT Classic Three, cumulative spectral-decay plot calculated from the output of an accelerometer fastened to the center of the cabinet's rear panel (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

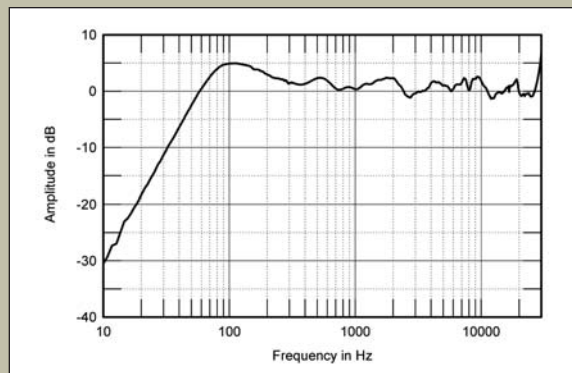


Fig.3 NHT Classic Three, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with the complex sum of the nearfield responses plotted below 300Hz.

the level of pitch discrimination and subtleties of low-level dynamics were not what I'm used to hearing from speakers costing only \$800/pair. The upper partials of the bell tree were delicate and seemed very extended. The articulation of the rain stick against the rear of the soundstage was such that it seemed as if I could hear every drip.

I was easily able to follow violinist Tom Chiu's phrasing and technique in David Chesky's Violin Concerto, from *Area 31* (SACD, CD layer, Chesky SACD288), and the extended violin partials were realistic without sounding at all harsh. Moreover, the subtle timpani dynamics, transients, and pitch were transparent as the speakers disappeared into the soundstage.

The Threes loved to reproduce percussion. Drummer Mark Flynn's dynamic bass-drum technique and ride-cymbal textures on "Repose

and Vertigo," from Attention Screen's *La Tessitura* (CD, Hojo HOJO110), had a bloom and immediacy like that of a live performance. I dredged out my original British pressing of King Crimson's *Larks Tongues in Aspic* (LP, Island ILPS 9230) and braced myself for the dynamic blast when percussionist Morris Pert hits the deacon chime during the quiet midsection of "Easy Money." I felt as if Pert were hitting me right between the eyes with his mallet; the shimmering decay of that gorgeous burnished instrument lasted for many seconds.

Percussion seemed so realistic partly due to the NHT's dead-on-accurate articulation of transients. The interaction of Chris Wood's bass and Jim Capaldi's drums on Traffic's *John Barleycorn Must Die* (LP, Island 90058-1) locked into a rhythmic drive that reaffirmed why many years ago I placed this album on my list of the "Top 20 Rock Albums of All Time." It had been quite

a while since I'd listened to it, however. From my notes: "I didn't realize how well recorded this album is!" I had never before noticed the delicate percussion fills along the rear wall of the soundstage.

The Three's lower-midrange naturalness and transparency made it an excellent match for jazz woodwind recordings. On "I'm an Old Cowhand," from Sonny Rollins' *Way Out West* (CD, JVC VICJ-60083), Rollins' tenor sax (I quote again from my notes) "bloomed subtly and silkily." Male vocals were equally spectacular. The male chorus in John Rutter's *Requiem* (CD, Reference RR-57CD) were layered holographically along the wide, deep stage without a hint of coloration. The Classic Threes "disappeared"; it was easy to discern the hall's acoustic.

The Rutter recording highlighted two aspects of the Three's bass. First, for such a small speaker with no reflex loading, the low-bass extension

the Three is basically flat down to 90Hz or so. Higher in frequency, the NHT's basically even response on the tweeter axis is broken by an equal number of small peaks and dips. These should be benign when it comes to coloration, but I do note that Bob Reina was taken by the Classic Three's reproduction of vocals, which may be a result of the slight boost in output apparent at the top of the midrange in fig.2. Note how the use of a small-diameter metal-dome tweeter pushes the usual dome resonance up above 30kHz.

The grille consists of cloth stretched across a vestigial frame, so I was somewhat surprised to find that it had a relatively large effect on the Classic Three's tweeter-axis response (fig.4). Though he didn't remark on any tonal differences, BJR did feel that the speaker's presentation was slightly more detailed without the grille; this might be due to the grille's slight suppression of mid-treble output.

Measured without its grille, the Classic Three's lateral dispersion was superbly wide and even (fig.5), with only a very slight off-axis flare in the low treble, though this will add to the audibility of the on-axis peak in the same

region. Note also that the speaker's output doesn't fall off to the sides as much as usual above 10kHz. This, again, will be due to the speaker's use of a small-diameter tweeter. In the vertical plane (fig.6), the speaker is relatively unfussy regarding exact listening axis, but a big suckout develops at 5.3kHz more than 10° above or below the

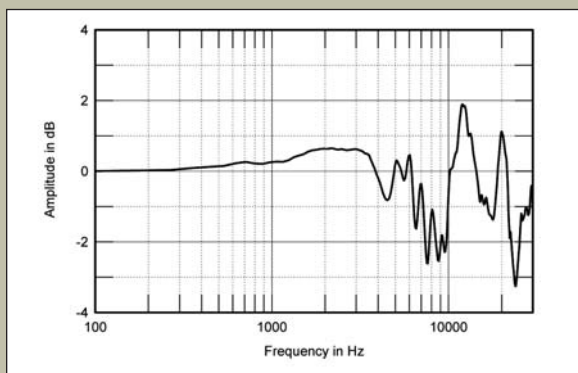


Fig.4 NHT Classic Three, effect on tweeter-axis response of adding the grille (2dB/vertical div.).

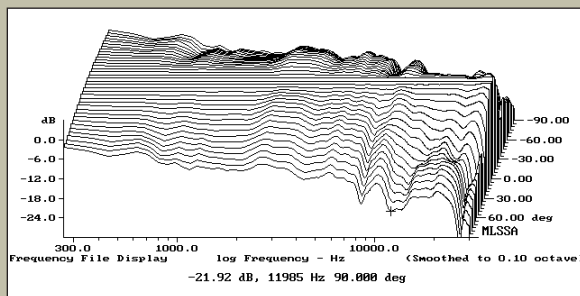


Fig.5 NHT Classic Three, lateral response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 90-5° off axis, reference response, differences in response 5-90° off axis.

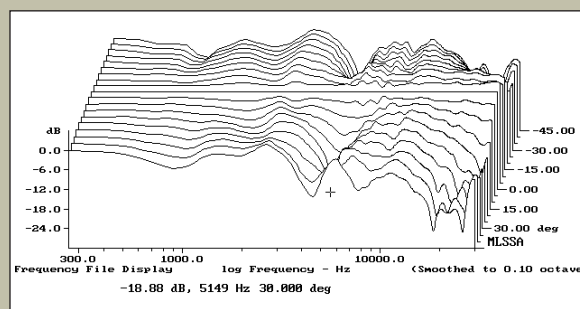


Fig.6 NHT Classic Three, vertical response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 45-5° above axis, reference response, differences in response 5-45° below axis.

subjectively seemed to go fairly deep. (What's the frequency, Kenneth—er, I mean, John?) This recording's midbass, however, seemed slightly elevated—not a boomy resonant coloration, but throughout the midbass the clearly defined notes seemed a notch higher in volume. This elevated midbass also manifested itself as a slight warmth in the sound of the string bass on most jazz recordings I listened to, such as Victor Krauss's excellent string work on Bill Frisell's *East/West* (CD, Nonesuch 79863-2). However, in no case was this bothersome, nor did it call any particular attention to itself. In fact, Ray Brown's bass solo on "I'm an Old Cowhand" had a natural linearity, with excellent attack, definition, woodiness, and no trace of excess bloom. Nor was there any problem in the bass with rock recordings, even when I cranked up the volume. On "Man Machine," from Kraftwerk's *Minimum/Maximum* (CD, EMI ASW 60611), which I usually listen to at 105dB, the subtle bass-synth articulations were all there, with no hint of overhang, loss of definition, or lack of transient speed.

The recording that showed the NHT at its best was Tomiko Kohjiba's *Transmigration of the Soul*, from *Festival* (CD, Stereophile STPH007-2). The opening flute passage was airy and appropriately breathy; it was easy to follow flutist Carol Wincenc's phrasing technique. I could hear the rosin on the violin bows, the reediness in the clarinet, and the natural timbre, authority, decay, and air of the timpani. With all classical recordings, the Classic Three's overall sound was akin to what I would expect from much more expensive speakers in terms of the air surrounding the instruments and the replication of the recorded acoustic.

Comparing

I compared the NHT Classic Three (\$800/pair) with its predecessor, NHT's SB3 (\$600/pair), as well as the Epos M5 (\$650/pair) and the Nola Mini (\$695/pair).

The NHT SB3's midrange was as seductive as the Classic Three's, but with much less detail. The SB3's highs sounded natural but were not as detailed, extended, or refined as the Three's. The SB3's midbass was also much less defined, and the Classic Three was superior in rendering low-level dynamic articulations.

The Epos M5's midrange was as delicate, refined, and detailed as the Classic Three's, and its highs were airy and extended. The M5's midbass was cleaner, tighter, and leaner than the Three's, but the latter's bass extension was superior, as was its high-level dynamic capability.

The Nola Mini had a natural midrange as well as extended and detailed highs. Midrange inner detail was more revealing through the Nola, however, and its bass extension and high-level dynamic capabilities were superior to those of the Classic Three.

Concluding

I applaud NHT, who have updated the already excellent SB3 to create a smaller, more elegant performer that exceeds the performance of the older speaker in every important parameter. That's real progress. At \$800/pair, the Classic Three is a superb value, particularly for those listening rooms in which size and cosmetics are important but whose owners are reluctant to give up performance in bass definition and

extension and in high-level dynamics. In every one of my listening sessions, the NHT Classic Three sounded like a larger, more expensive speaker. Keep up the good work, guys. ■

ASSOCIATED EQUIPMENT

ANALOG SOURCES VPI TNT IV turntable, Immedia RPM tonearm, Koetsu Urushi cartridge; Rega Planar 3 turntable, Syrinx PU-3 tonearm, Clearaudio Virtuoso Wood, Aurum Beta S cartridges.

DIGITAL SOURCES Lector CDP-7T, California Audio Labs Icon Mk.II Power Boss, Creek CD53 Mk.II CD players; Pioneer DV-333 DVD player.

PREAMPLIFICATION Vendetta Research SCP-2D phono stage, Audio Valve Eclipse line stage.

POWER AMPLIFIER Audio Research VT100 Mk.II.

INTEGRATED AMPLIFIER Creek 5350SE.

LOUDSPEAKERS NHT SB3, Epos M5, Nola Mini.

CABLES Interconnect: MIT MI-350 CVTwin Terminator, MI-330SG, Terminator. Speaker: Acarian Systems Black Orpheus.

ACCESSORIES Various by ASC, Bright Star, Celestion, Echo Busters, Salamander Designs, Simply Physics, Sound Anchor, VPI. —Robert J. Reina

measurements, continued

tweeter axis. I would have thought that this suckout was a crossover artifact, but it is a little higher than the specified frequency at which the midrange dome crosses over to the tweeter.

In the time domain, the Classic Three's step response (fig.7) indicates that all three drive-units are connected with the same positive acoustic polarity, with the fact that each unit's step smoothly hands over to that of the next lower in frequency, correlating with the good integration

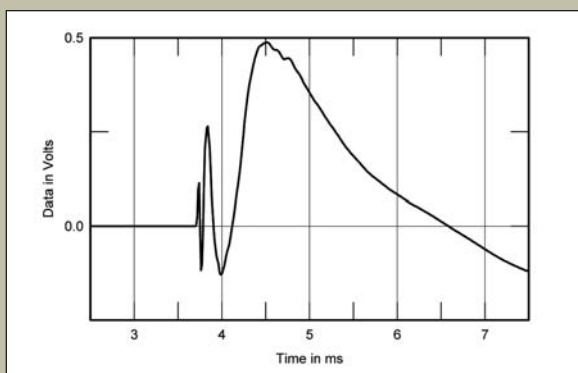


Fig.7 NHT Classic Three, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

seen in the speaker's frequency-response graph. The NHT's farfield cumulative spectral-decay plot (fig.8) is generally superbly clean, though a low-level resonant mode can be seen at 8kHz. This is most probably the primary breakup mode of the midrange dome, but it is well suppressed by the crossover.

This superb measured performance is especially commendable given the Classic Three's price of \$800/pair.

—John Atkinson

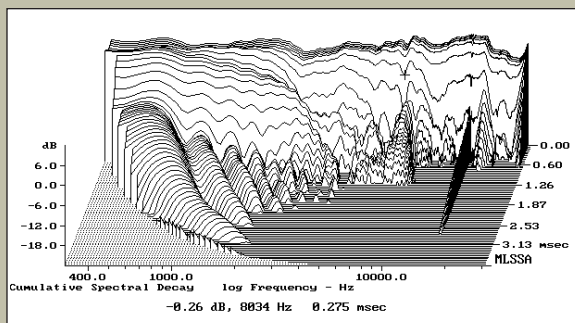


Fig.8 NHT Classic Three, cumulative spectral-decay plot at 50" (0.15ms risetime).