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Reviewed by
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NuForce Reference 8.5 Mono Amplifiers



FEATURES SNAPSHOT!

Description

Model: Reference 8.5

Price: \$995 USD each

Dimensions: 8.5"W x 1.8"H x 14"D

Weight: 7 pounds

Warranty: Three years parts and labor

Features

- Compact design
- Output (source) impedance rated at near zero for the entire frequency response
- Signal/noise ratio rated at 100dB at 100W
- Eichmann Cable Pod binding post for spades and banana plugs
- High-grade brushed, anodized aluminum chassis
- Worldwide AC voltage (84-246VAC)
- Balanced XLR and single-ended RCA inputs
- Removable power cord

Every time I think I've begun to figure out the technical issues involved in electronics design, someone up and changes the issues. Back in my youth, the knowledge required to understand the basics of cartridge design and parallel speaker crossovers could be covered in a couple of entry-level electronics courses. Since the advent of the compact disc, all of that has changed. The complete inner workings of

the lowly digital-to-analog converter require a book to adequately explain. Discussions of the latest developments in video processing and advanced compression codecs are enough to make my eyes glaze over and the room spin. At least the changes in solid-state amplifier design have been relegated to a slower evolution.

Or so I thought. Enter the NuForce Reference 8.5 monoblock amplifier (\$995 each).

Here we go again

Solid-state switching amplifiers have been around for many years, but we audiophiles never paid much attention to them -- until recently, they weren't generally useful for full-range audio amplification. But now, everything you thought you knew about solid-state amplifier design is quickly becoming obsolete. I've seen the future, and the solid-state amplifier as we know it is almost certainly as dead as the cathode-ray-tube TV. That doesn't mean the shift will happen overnight, or that, 30 years from now, you won't still find some holdouts listening to behemoth class-A solid-state amps. However, that will be the exception then, as it is with tube amps today. The iPod generation is looking for convenient, compact, efficient electronics, and that's where the world is headed.

That said, I'm a technological agnostic and a true believer in sound quality: I don't care if it's tubes or switching amplifiers, vinyl or CD, HD DVD or Blu-ray, so long as the music or picture moves me. For years, I've listened to members of the electronics community argue the relative merits and deficiencies of pretty much every technology and design philosophy under the sun. I continue to be amazed by the number of people who espouse their particular ideological viewpoint as a religion rather than recognize it for what it should be: a means to an end. As I listen to people argue their points over and over again, I have to wonder what those points are. When you come home from a long, hard day of work, the only thing that's important is whether or not your system loosens the strings on your philosophical girdle and lets you breathe a little easier.

Switching Amplifiers 101

It would take more space than I have here to fully explain the operating theories behind what makes the NuForce Reference 8.5 tick. The short version is that the amp's class-D switching amplifiers turn the output devices, generally MOSFETs, on and off up to 500,000 times per second. Many switching amplifiers in the past have used digital fixed-frequency pulse-width-modulation techniques, which NuForce says limit bandwidth. In contrast, the Reference 8.5 and all current NuForce amplifiers use an analog modulation technique, which is why NuForce calls them analog switching amplifiers. If you don't understand exactly what all that means, you're not alone. Fortunately, there's no need to hold multiple engineering degrees to *hear* the differences among electronic components.

One advantage of this sort of design is extremely high efficiency, which means smaller power supplies, less power consumption, and very little heat. The long, thin, ventless case of the diminutive Reference 8.5 -- it measures 8.5"W x 1.8"H x 14"D and weighs only 7 pounds -- would simply not be possible in a conventional design. In fact, the extremely high switching speeds of a class-D amp practically necessitate smallness, due partly to the EMI problems created by the combination of long circuit traces and high speed. The conventional power-amp wisdom has always been that large, discrete components are best, but the opposite is true of switching amplifiers, in which small surface-mount components are a given.

Another strength of the Reference 8.5 is its incredibly high damping factor at any audio frequency. NuForce rates this at 4000 -- well beyond the specs for any other amplifier I've had in my listening room. The damping factor indicates how well an amp can stop the movement of a speaker's drivers after the signal has stopped, so this can be very important, particularly with speakers whose driver suspensions are very compliant. Older solid-state amps and tube amps frequently had damping factors well under 100, and newer designs rarely exceed 1000. I've referred to the damping factor in some designs as having a vise-like grip on the drivers, so I guess the NuForce amp would have a death grip. Those drivers won't be doing anything the 8.5 doesn't tell them to do.

Setting up the Reference 8.5 is fairly simple, though the manual includes a number of warnings about connections to be aware of, including not hooking the amplifiers up to the speaker inputs of a powered subwoofer, and making sure the speakers are connected before turning on the amps. One potentially important note is a fairly strong warning to turn the amplifiers off if the preamp is turned off. I find this a little odd; the 8.5 lacks a power trigger, and its power switch is hidden away on the rear panel. Heeding NuForce's advice almost requires running the amplifiers through a triggered power conditioner. And if your system setup is unusual, there are other cautions you'll need to be aware of with the 8.5. This is one amplifier manual you might actually want to *read* prior to installation.

As far as the 8.5's rear panel goes, this was the first time I'd encountered the Eichmann Cable Pod binding posts. I was pleasantly surprised by their quality and by the fact that, despite my cramped equipment rack, they were very easy to grasp and tighten. The RCA and XLR inputs are also of high quality though are nothing out of the ordinary, but the RCA jack can be upgraded to the WBT Nextgen connector for a modest fee. In fact, the entire 8.5 will be able to be upgraded to Reference 9 status at some later date for a mere \$250 each.

NuForce sent me three Reference 8.5s, to cover the front channels of my theater system -- which brings up a good point. At a thousand bucks a pop, powering a seven-channel surround-sound system with 8.5s would be pretty expensive for most of us. For years now, I've used a good-quality three-channel amplifier for the front channels but have handed off the less critical surround-channel duties to a multichannel amp, and it's worked out well. If you have the cash to drop an extra \$4000 on 8.5s for the surrounds, go for it, but there's no shame in spending the money where it counts -- up front -- and investing your savings elsewhere.

A new lesson in listening

One of the better recent demo movies I've seen is *War of the Worlds*, though I find the video a little too odd to use as a reference. However, the DTS surround track is among the most dynamic and active of any available today. Through the NuForce Reference 8.5s, the thumps of explosions in the distance during the battle scenes were clearly sharper and better defined than with my Chiro C-300 three-channel amp. That said, I've always maintained that while explosions get all the attention, it's the subtleties that separate merely good from great sound. To get the subtle details right, crystal clarity and flawless soundstaging are the keys to everything. As Ray and Rachel enter Boston, Ray stops to examine a dying alien plant. It's the light rustling noise that crosses the front of the soundstage as the breeze carries away the crumbled remains of the plant that steals the scene.

I normally use *Black Hawk Down* to test a subwoofer's extreme-low-frequency extension, but in this case I wanted to hear how the Reference 8.5s performed with demanding material driving my main

speakers full-range. What I heard was detailed, clean, and effortless. The bass response, in particular, seemed sharper and better defined, though the entire audible spectrum was affected. My front speakers -- Silverline Sonatinas and PSB Stratus 5 center -- are fairly efficient, but the NuForces seemed to have nearly unlimited reserves, and never once sounded as if they were running out of juice, even when I ran the speakers full-range at ear-splitting levels.

I was so excited after listening to Pink Floyd's *The Wall* [CD, Columbia 36183] that I had to drag my wife into the theater for a quick demo. It was the helicopter (track 3) that really grabbed my attention. The staccato thumping of the rotor wash was tighter than anything I'd ever heard before. The sonic impact of each *thump* was jarring, like the real thing; the 8.5's exceptionally high damping factor was surely partly to credit. And after each loud transient, the woofers come to a complete stop with almost no trail-off of cone movement. This sort of control affects the entire frequency spectrum, but it's particularly easy to hear in loud bass segments. My wife heard the difference in sound immediately, with no prompting from me.

Michael Nyman is better known for his scores for such films as *The Piano* (from which his Piano Concerto was derived) and *Gattaca*, but I'm still surprised that *The All Music Guide* seems to have completely missed *The Piano Concerto* and *Where the Bee Dances* [CD, Naxos 8.554168], with pianist John Lenehan and saxophonist Simon Haram, and Takuo Yuasa conducting the Ulster Orchestra. This is easily one of my favorite classical discs of all time. Every time I bring this up, my brother reminds me that I bought the last available copy at Tower Records on a trip to New York City a few years ago. I think he still hasn't bought a copy for himself. Anyway, the NuForce amps revealed a layering of the violins in *The Beach* that created senses of depth, richness, and emotion that were lacking with the Chiro amp in the system. I'd never heard my system render classical music nearly this well.

One of my new favorites is Herbie Hancock's *Possibilities* [CD, Vector 70013], on which Hancock collaborates with artists from other genres of music. I was awestruck by the immediacy of the solo piano at the opening of Paul Simon's "I Do It for Your Love." The overall transparency and clarity of the upper midrange and treble I heard with the NuForce amps driving my Silverline Sonatinas is more in line with what I've come to expect from the Magnepan MC1 speakers I have in another system.

No contest

The only amplifier I had on hand that was nearly comparable to the NuForce amps was the three-channel Chiro C-300, which sold for \$1500 several years ago. The Chiro is a conventional linear amplifier design but has always been a pretty respectable performer. You'd expect the NuForce to sound at least somewhat better at roughly twice the price per channel, but this contest was over before it began. The Chiro was simply no match for the Reference 8.5 in *any* respect. With the NuForce, the bass response was fast, tight, and effortless; the Chiro sounded absolutely ponderous in comparison. The 8.5 also improved the high-frequency resolution, which resulted in more "air" around female vocals and cymbals.

Wow

Technologically agnostic or not, this is pretty exciting stuff. NuForce has advanced technology for the sake of art and has done so with tremendous success. If you've been hearing a lot about this amplifier and have wondered whether it's everything it's cracked up to be, it is. The NuForce Reference 8.5

monoblock is the best-performing amplifier I've ever had in my system, and no one needs an engineering degree to understand that.

Review System

Speakers - Silverline Sonatina (mains), PSB Stratus C5 (center), PSB Alpha AV Mite (surrounds)

Preamplifier-Processors - Anthem AVM 20, Monoprice HDX-501

Amplifiers - Rotel RB-976, Chiro C-300

Sources - Toshiba HD-A1 HD DVD player, Oppo OPDV971H DVD player, Sony SAT-HD200 DirecTV receiver, Adcom GCD-600 CD player

Display Device - Panasonic PT-AE900 LCD projector

Cables - Analysis Plus, Audio Magic, Straight Wire, Monster Cable

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