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JASON VICTOR SERINUS

Boulder 1151

MONOBLOCK POWER AMPLIFIER



For several decades—from well before I toured the Boulder factory in 2016—I’ve wanted to get a handle on the best sound the now-41-year-old company can offer. Multiple listening sessions at shows had more than hinted at excellence. But neither my time in Boulder’s large, dedicated music room, which was intentionally dry, nor exposure at various hi-fi shows left me convinced that I’d heard Boulder’s full potential.

My first opportunity for an in-home audition came in 2021, when I reviewed the 866 stereo integrated amplifier (\$17,500 with

Bass was solid and perfectly controlled, and the sound was warm and inviting.

awareness and expand the company’s reach by offering “a more accessible product that provides the features we think many people are looking for with the performance they have come to expect from Boulder,” only provided a peek at the excellence I expected Boulder to achieve.

So when a last-minute review cancellation opened space to

DAC, \$16,000 without). But that entry-level (by Boulder standards) product, which Senior Engineer Jameson Ludlam said was released to build brand

SPECIFICATIONS

Description Mono class-A power amplifier with “Smart Current” biasing. Analog inputs: 3-pin XLR. Digital inputs: USB (for software updates). Loudspeaker outputs: two stereo pair 0.025" (6mm) binding posts for biwired loudspeakers. Maximum input voltage: 1.14V for maximum rated output at full rated power. Power output: 250W continuous into

8 ohms (24dBW), 350W peak power into 8 ohms, 600W peak power into 4 ohms, 750W peak power into 2 ohms. THD, 8 or 4 ohms, 250W: 0.002%, 20kHz: 0.01% THD, 2 ohms 250W: 0.0003%, 20kHz: 0.02%. Equivalent input noise, 20kHz: 2.2µV. Maximum analog gain: +26dB. Frequency response, 20Hz–20kHz: +0.00, –0.04dB; 0.015Hz–150kHz: –3dB. Power

consumption: 800W max, 60W idle, 10W standby.

Dimensions 18" (457mm) W × 16.6" (422mm) D × 7.2" (183mm) H. Weight: 54lb (24.5kg). Shipping dimensions: 24" (610mm) W × 23" (590mm) D × 14" (360mm) H. Shipping weight: 63lb (28.6kg).

Finish Silver anodized aluminum.

Serial numbers of units

reviewed 14142, 14182. Manufactured in the United States.

Price \$47,000/pair. Approximate number of US dealers: 20. Warranty: 5 years.

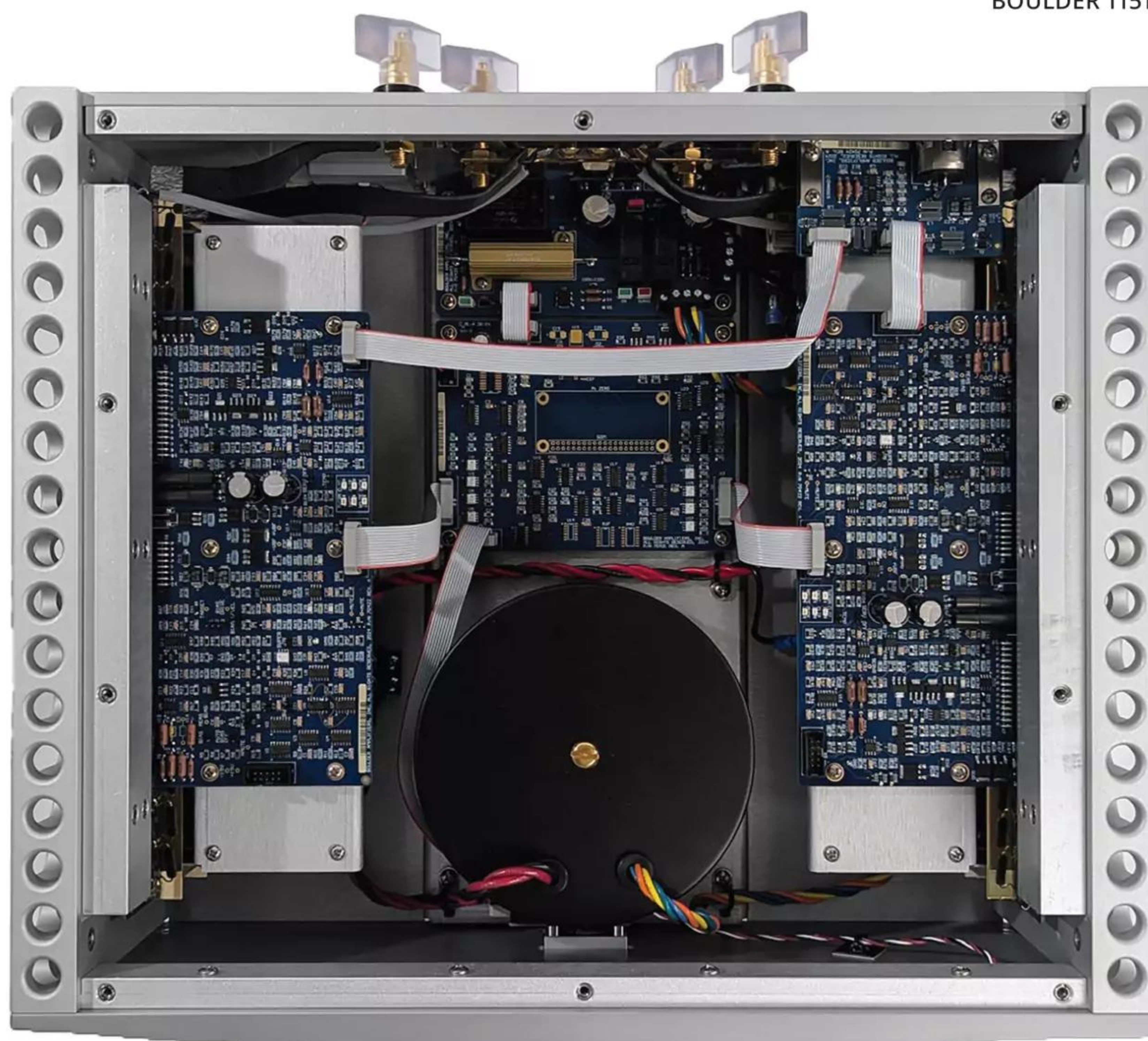
Manufacturer Boulder Amplifiers, Inc., 255 S. Taylor Ave., Louisville, CO 80027. Tel: (303) 495-2267. Web: boulderamp.com.

review the just-released Boulder 1151 mono power amplifier (\$47,000/pair), I thought, “At last!” The 1151 is currently topped in Boulder’s mono line by only the 2150 (\$130,000/pair) and the 3050 (\$306,000/pair), which are too massive for my space. But then, when a press release for Boulder’s new models arrived, I realized that what I was about to hear represented a major departure for the company.

As Boulder’s entry-point mono amplifier, the fully balanced 1151 delivers a more-than-respectable 250W of continuous power into 8, 4, or 2 ohms, peaking at 350W into 8 ohms, 600W into 4 ohms, and 750W into 2 ohms. It is also the first monoblock in the 1100 series said to offer full “class-A” sound and the first to use Boulder’s just-introduced proprietary “Smart Current” technology,¹ which is intended to address the notorious inefficiency of traditional hot-running, power-sucking class-A.

“Boulder’s Smart Current output stage continuously monitors the current drawn by the speaker and self-adjusts as needed,” the press release declared. Accomplished “exclusively with the use of analog parts,” Smart Current Bias is said to deliver “higher performance, more details, better reliability, and a more natural musical listening experience.”

For now, Smart Current technology is only available in the 1100 series; the higher-level 2100 and 3000 series amplifiers use Boulder’s class-A Sliding Bias. Was I about to hear a new variation on the older core sound of a company that only changes its product line when it has something significantly new and different to offer,² or is Smart Current bias the first glimpse of a whole new Boulder sound?



These new monoblocks have less metal in them; that much is clear. The 1151 monoblocks weigh just 54lb each. For once, I was able to unpack, position, and repack a high-end monoblock ampli-

¹ A white paper on Smart Current technology can be found at boulderamp.com/wp-content/uploads/Smart-Current-White-Paper-121824.pdf.

² Boulder’s original 2000 series lasted over 15 years before it was updated to the current 2100 series.

MEASUREMENTS

I performed a complete set of measurements on one of the Boulder 1151 amplifiers (serial number 14142) with my Audio Precision SYS2722,¹ then repeated some of the tests with the magazine’s higher-resolution Audio Precision APx555. I preconditioned the 1151 by following the CEA’s recommendation of running it at one-eighth the specified power into 8 ohms for 30 minutes. At the

end of that time, the temperature of the top panel was just 89.8°F (32.1°C) and that of the side-mounted heatsinks 97.3°F (36.3°C).

As the balanced input is wired with pin 2 positive, the AES standard, the amplifier preserved absolute polarity. The 1151’s balanced input impedance is specified as 200k ohms. I measured 184k ohms at 20Hz and 1kHz, 90k ohms at 20kHz. The

output impedance was a low 0.035 ohms at 20Hz and 1kHz, rising very slightly to 0.038 ohms at 20kHz. As a result, the variation in the frequency response with our standard simulated loudspeaker² (fig.1, gray trace) is negligible. The response into

¹ See stereophile.com/content/measurements-maps-precision.

² See stereophile.com/content/real-life-measurements-page-2.

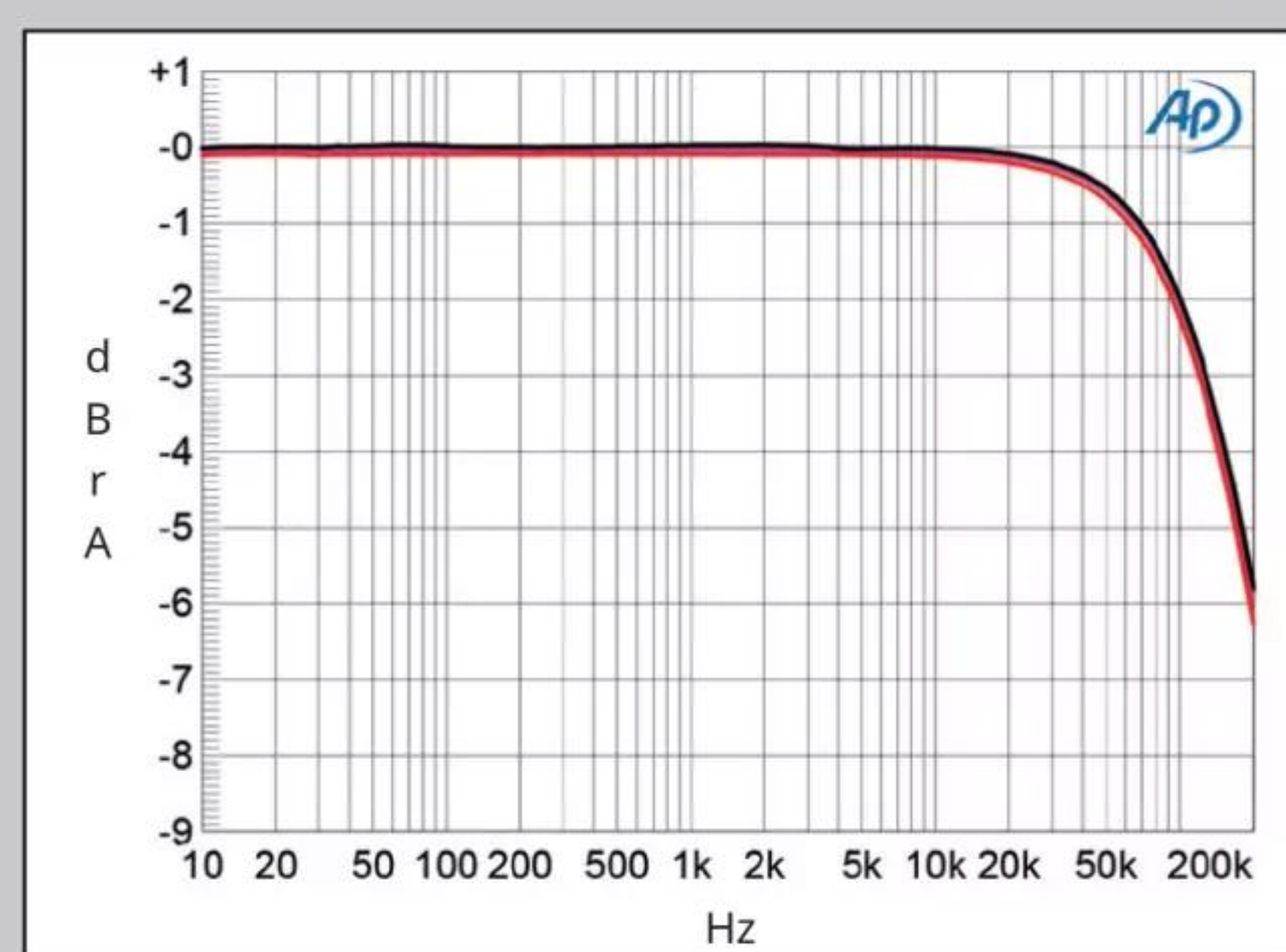


Fig.1 Boulder 1151, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (blue), 4 ohms (magenta), and 2 ohms (red) (1dB/vertical div.).

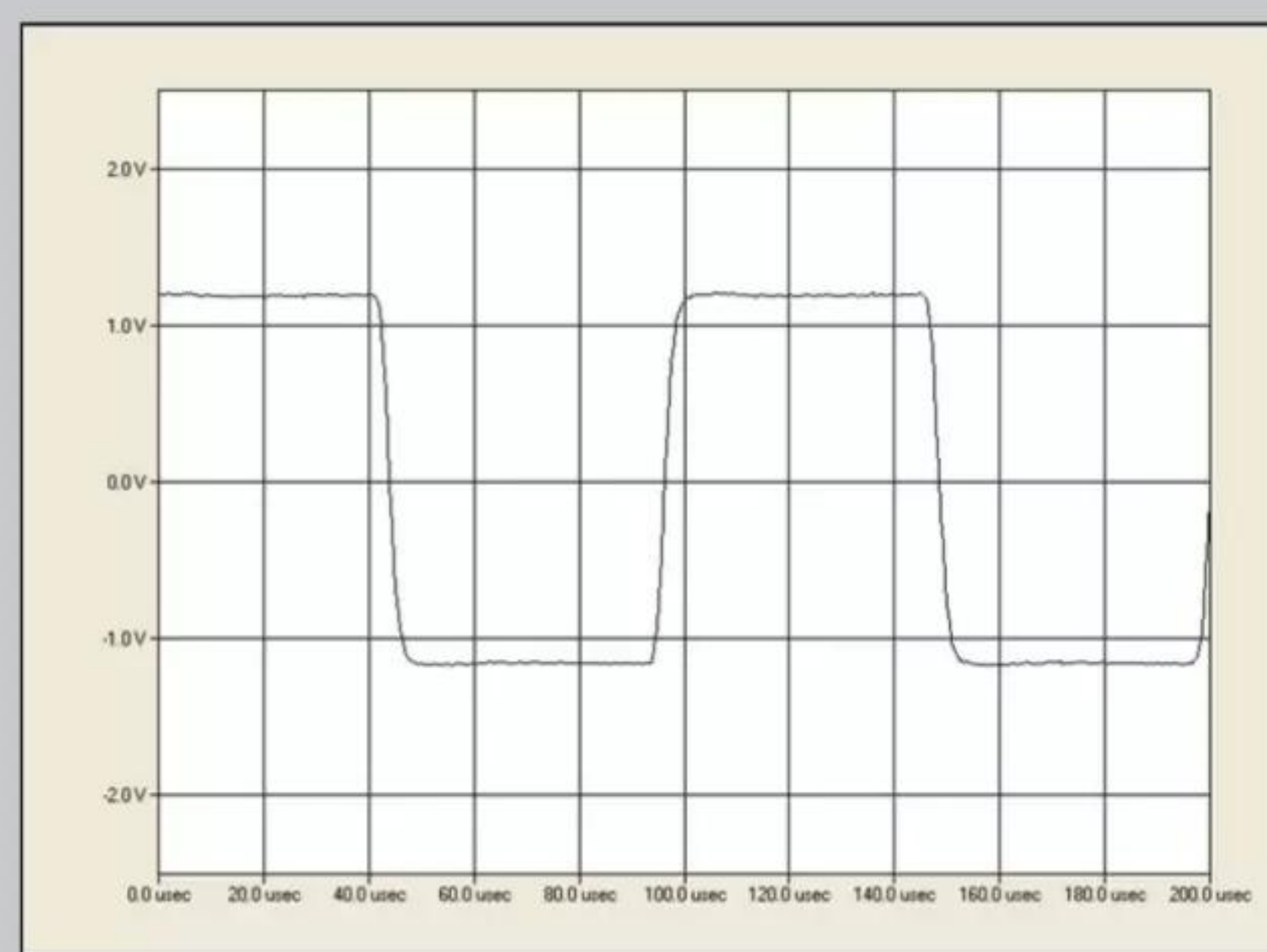


Fig.2 Boulder 1151, small-signal 10kHz squarewave into 8 ohms.

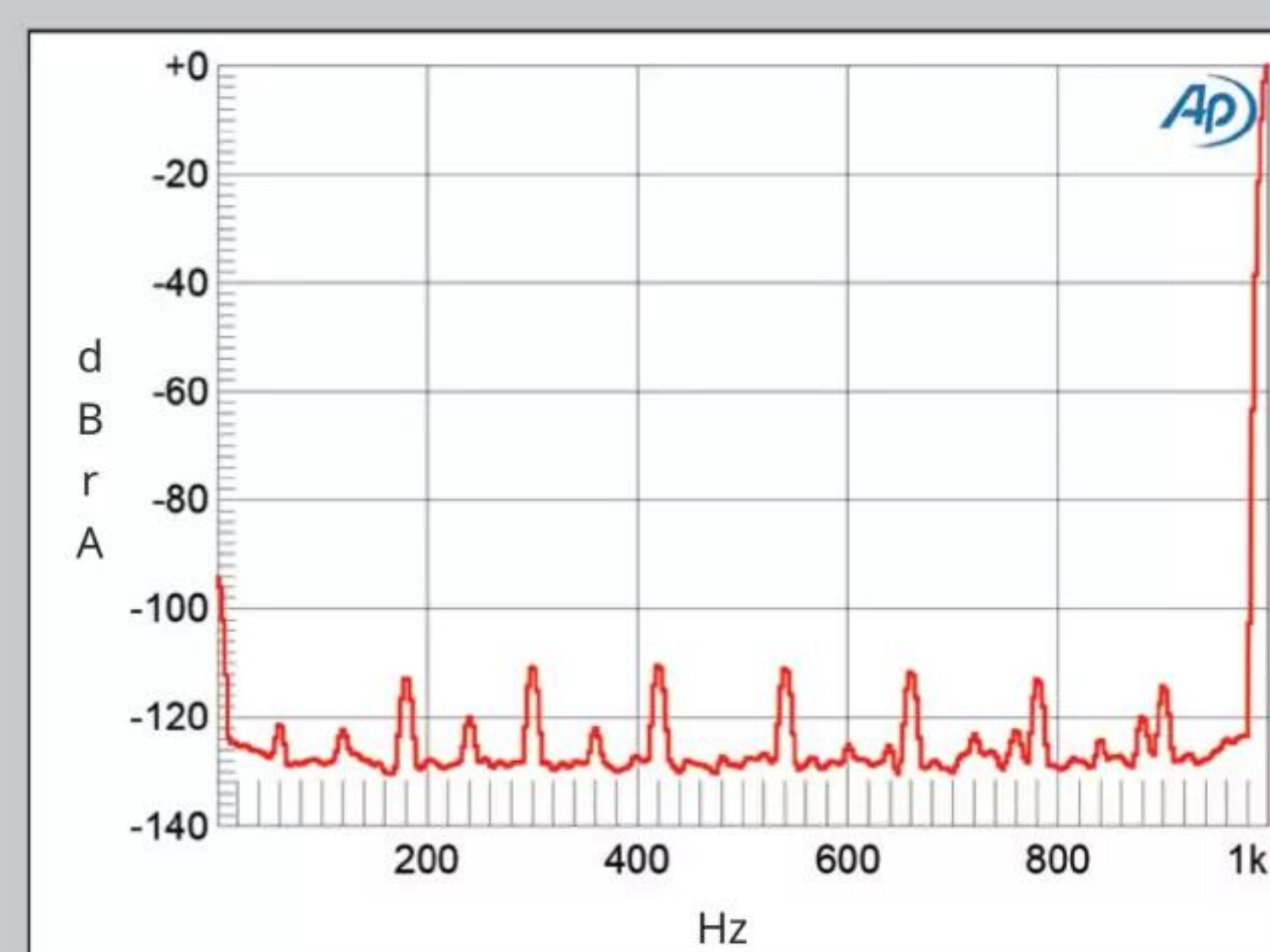


Fig.3 Boulder 1151, spectrum of 1kHz sinewave, DC-1kHz, at 1W into 8 ohms (linear frequency scale).

fier without assistance. It was hard to sit on my couch and gaze upon the Boulders without feeling a sense of liberation.

What we have here

The 1151's front-panel design derives from a topographical map of Flagstaff Mountain, which is near Boulder's Colorado facility. The modestly sized heatsinks are machined from a solid aluminum billet, and the feet have "special constrained layer damping material for vibration."

The output section of this two-stage design, which was designed to deliver "distortion-free high current to the speaker," uses "multiple smaller, faster filter capacitors instead of fewer larger caps to deliver dynamic impact." That's 40 output transistors and 12 supply capacitors, arrayed to ensure stable power "into any load while maintaining detail and clarity."

Boulder Founder/Owner/Chief Engineer Jeff Nelson's white paper on Smart Current Biasing claims that "regardless of the audio frequency or level," this new technology "eliminates the damaging effects of parasitic capacitance. The occurrence of crossover distortion is so reduced to near zero as to be totally inaudible."

To learn more, I zoomed with Logan Rosencrans, Boulder's international sales manager. "Sliding Bias," which is used in the 2100 series, "doesn't really run hot because it jumps into class-A as soon as it senses signal," he said. "But Smart Current Bias looks at the output; it looks at what the speakers are doing and automatically adjusts. As the music signal changes, speaker cones need changing amounts of current to meet demand. Smart Current Bias 'sees' how much current the speaker demands and adjusts accordingly."

"We don't think anyone else is doing what we are doing in terms of bias. It doesn't fit into any traditional definitions of class-A, AB, or B. The closest thing we can call it is class-A, because the current flows through both transistors when music plays. Ours is a more advanced version of class-A. Most class-A amplifiers use trim pots

to set the bias; ours do not. We set bias automatically through analog circuitry that monitors and adjusts according to the speaker demand. This gets rid of notch distortion," which occurs in class-B and also class-AB depending on the bias current and the operating conditions. "It also keeps the amplifier from running hot"—as amplifiers do in class-A—"which is damaging over time, and prevents energy waste when you aren't playing music."

I asked if Nelson and his team of five engineers work to achieve a certain "Boulder sound"? Rosencrans said no. "Jeff is very much an engineer who strives for accuracy. That's been his design philosophy for over 50 years. Each product that we've designed gets closer and closer and closer to that goal."

In his original capacity as an equipment builder for broadcast studios in California and throughout the US, Nelson strove for sound as accurate to the original recording as was possible. Rosencrans told me that all Boulder engineering, including chassis machining, is done in its 9-year-old facility. The only things the company doesn't do are wind their own transformers, make raw PC boards, and anodize the casework, which requires the use of nasty chemicals. "Boulder County wouldn't have us doing that in this building," he said.

What I had in my building

Thanks to the 1151's manageable weight and modest size (compared to the behemoths that have crossed my threshold), it was a snap to put them on a pair of Grand Prix Monza amp stands. Because more weight is concentrated in the front half, I moved them far back on the stands to help even the load. I placed them atop the same Wilson Audio Pedestals I use under my reference amplifiers.

Boulder's speaker terminals are extremely easy to tighten by hand. I chose the set that best separated the speaker cabling from the 15A power cord. Once everything was hooked up, I flipped the main power switches on the 1151's rear panels. In short order,

measurements, continued

resistive loads was flat in the audioband, not reaching -3dB until 130kHz. With its wide small-signal bandwidth, the Boulder's reproduction of a 10kHz squarewave into 8 ohms featured very short risetimes (fig.2) with no overshoot or ringing.

The unweighted, wideband signal/noise ratio (ref. 1W into 8 ohms), taken with the input shorted to ground, was a superb 86.3dB. This ratio improved to 95.2dB when the measurement bandwidth

was restricted to 22Hz-22kHz, and to 96.8dB when A-weighted. Spectral analysis of the low-frequency noise floor as the Boulder drove a 1kHz tone at 1W into 8 ohms revealed a low random noise floor, and while odd-order harmonics of 60Hz were measurable, these all lay at or below -110dB (fig.3).

Boulder specifies the 1151's maximum continuous power as 250W into 8 ohms, which is equivalent to 24dBW. (The

maximum continuous power isn't specified into 4 ohms and 2 ohms.) Using our usual definition of clipping (THD+N of 1%), the 1151 exceeded its specified power, clipping at 310W into 8 ohms with both a 1kHz signal (24.9dBW, fig.4) and a 20kHz signal. The amplifier clipped at 500W into 4 ohms (21dBW, fig.5), but when I measured the maximum power into 2 ohms, the 1151 appeared to go into protection at 356W (19.5dBW). As soon as I turned off the

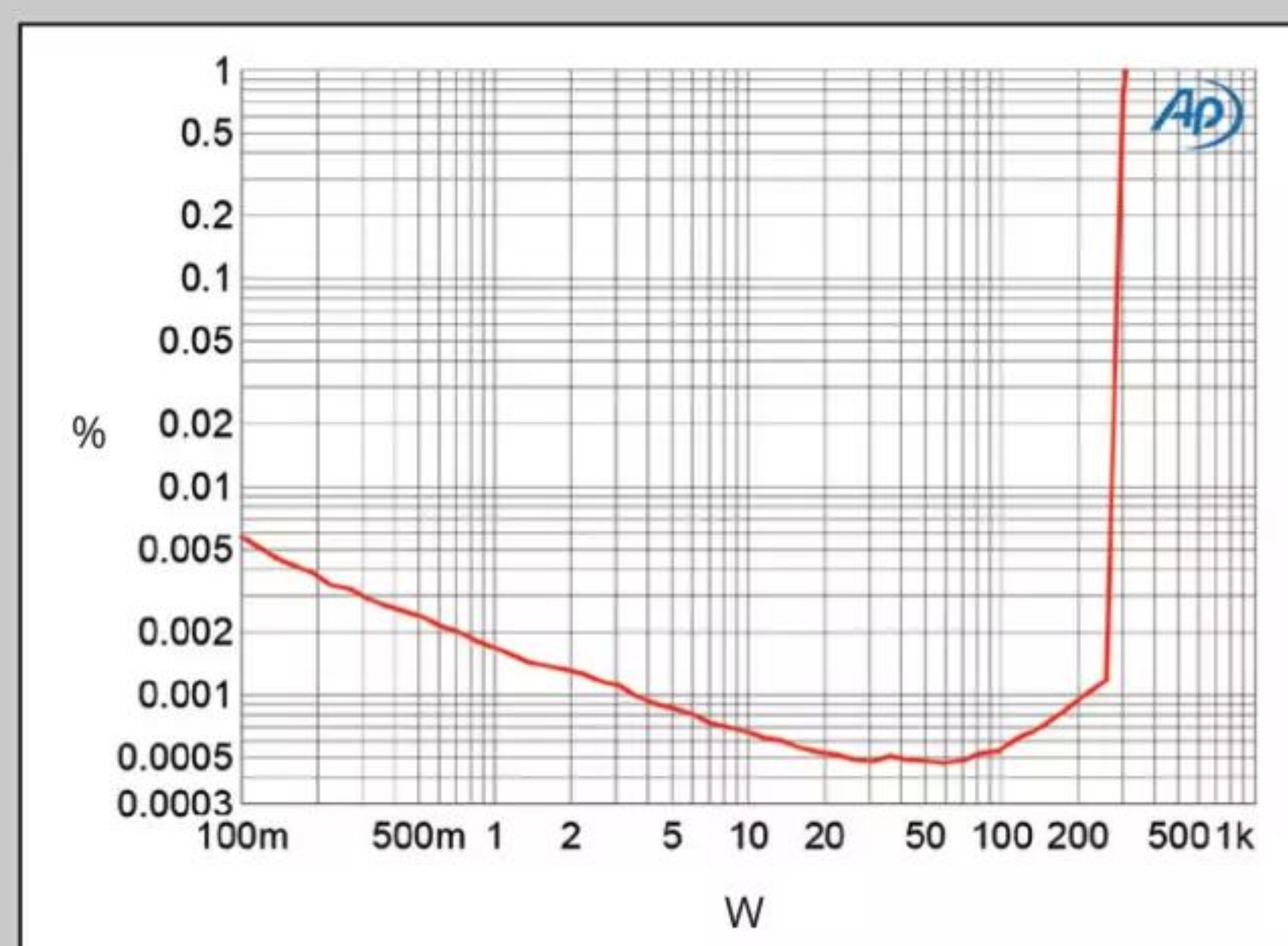


Fig.4 Boulder 1151, distortion (%) vs 1kHz continuous output power into 8 ohms.

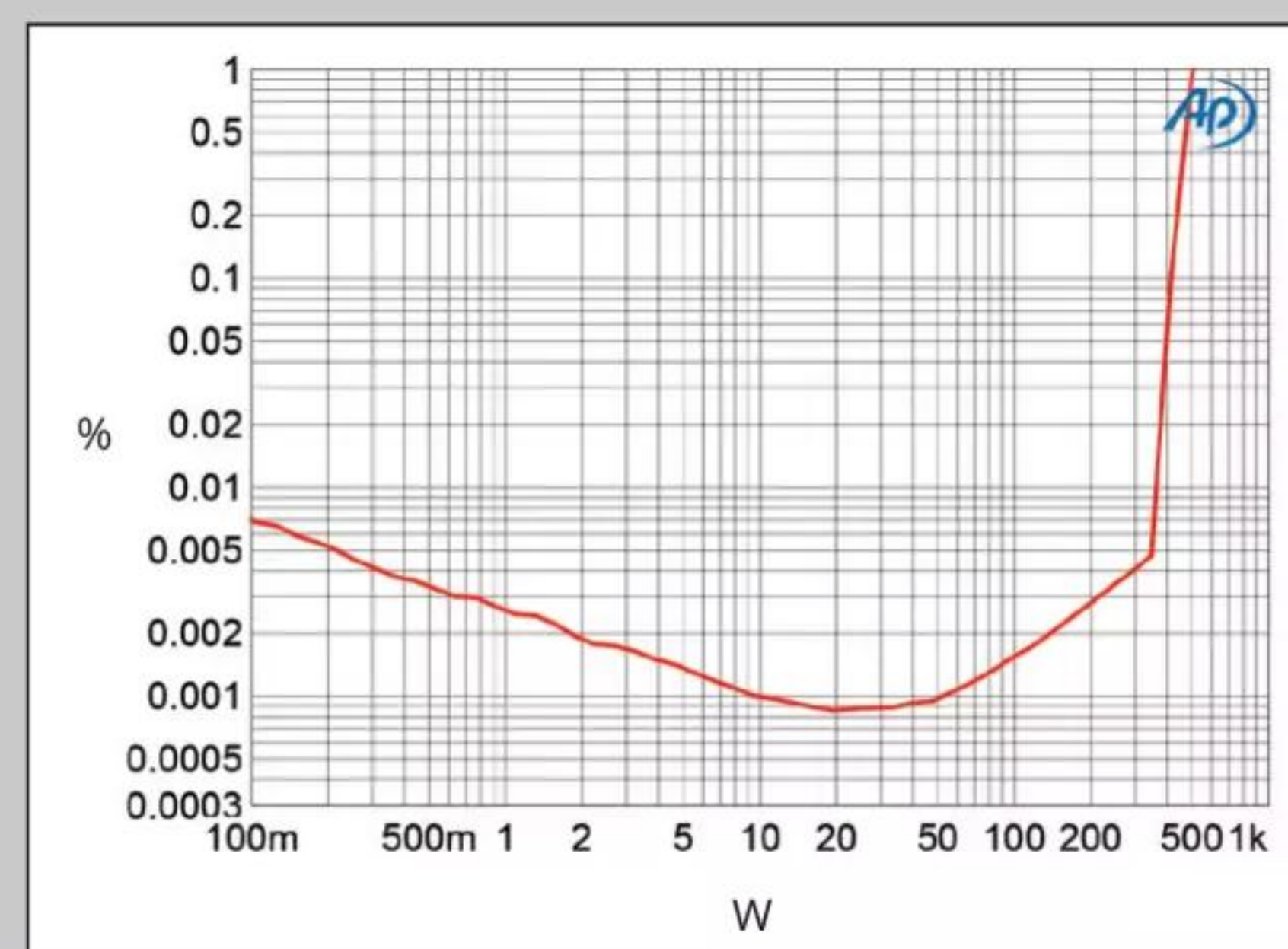


Fig.5 Boulder 1151, distortion (%) vs 1kHz continuous output power into 4 ohms.

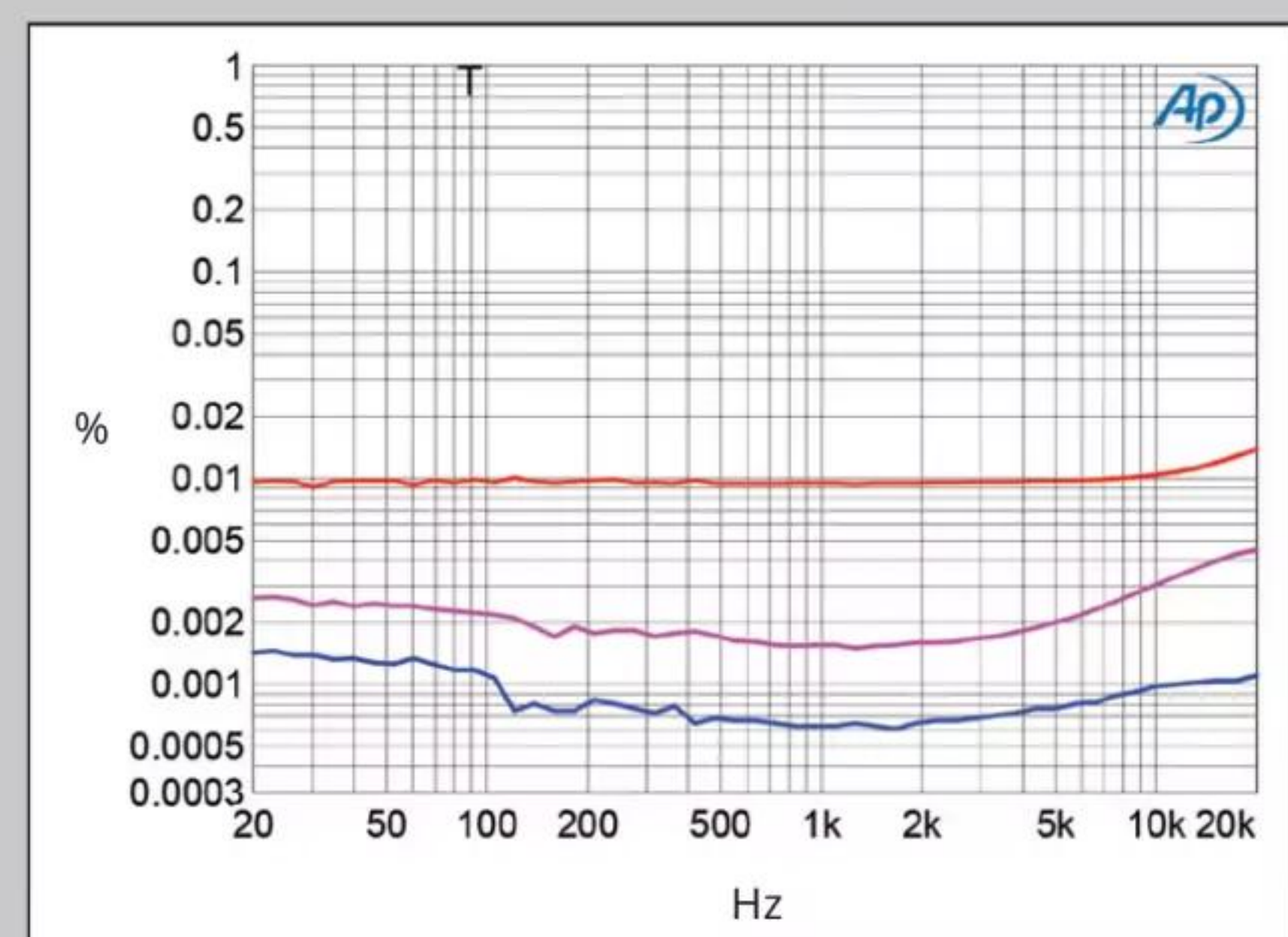


Fig.6 Boulder 1151, THD+N (%) vs frequency at 20V into: 8 ohms (blue), 4 ohms (magenta), and 2 ohms (red).

the amps settled into standby mode, the white LEDs on the front panel blinking on and off. It took just a push of the front panels' only button to turn the 1151s on fully. I allotted a full hour for warm-up. Rosencrans thought that 15–20 minutes would be sufficient.

And the sound

My initial impressions were uniformly positive. More than positive. Boulder's 1151 monoblocks sounded really beautiful. I began by sampling unfamiliar recordings for possible review. *Electric Fields* (24/48 WAV, Download/Alpha), from Barbara Hannigan, the Labèque Sisters, and David Chalmin, struck me as a bit too Hildegard von Bingen meets new age immersive, but it was compelling and intriguing enough to warrant a review. As I continued to listen, the warm, glowing bath of sound from the 1151s kept drawing me in.

One of the first things I wrote in my notes was "I can't tell which amps I'm listening to because the sound is as beautiful as any I've heard."

After quick listens to pianist Gloria Cheng's fascinating collection of new compositions on *Root Progressions* (24/96 WAV, Download/Biophilia Records), which was produced and engineered by Judith Sherman, and Malakoff Kowalski's *Songs with Words* (24/44.1 WAV, Download/Sony), I cued up a new recording

Boulder's 1151 monoblocks sounded really beautiful.

of time-tested material: Alice Sara Ott's recording of *John Field • Complete Nocturnes* (24/192 WAV, Download/Deutsche Grammophon). Ott's piano sounded gorgeous, warm, radiant, glowing. The sound was so enticing—like the proverbial pot of gold at the end of the rainbow—and Field's music so invitingly familiar and comfortable that I knew I had to review it.

As I listened longer and deeper into the soundscape, I found myself asking, "Do the colors of the piano sound so similar, from top to bottom, on my reference amps?" Compared to the much more expensive D'Agostino Momentum M400 MxV monoblocks, the piano's colors were a mite homogenized, the sound warmer than neutral. Nonetheless, the beauty and vibrancy of the 1151's wide-open presentation left me in critical gaga land.

The time for reference tracks had come. I began with a song that, in a demo of the dCS Varèse music system, wowed a seasoned group of audiophiles: the long version of Aretha's take on "Bridge Over Troubled Water," remastered in 2021 and issued on the compilation



measurements, continued

input signal, the amplifier resumed correct operation.

I examined how the percentage of THD+N varied with frequency at 20V, which is equivalent to 50W into 8 ohms, 100W into 4 ohms, and 200W into 2 ohms (fig.6). The THD+N percentage was extremely low into 8 ohms (blue trace), rising into 4 ohms (magenta trace) and 2 ohms (red trace). It was still low in absolute

terms, however.

The distortion waveform was predominantly the third harmonic (fig.7), which lay just above -100dB (0.001%, fig.8). While the second and fifth harmonics are present, these are 20dB lower in level than the third. While no even-order supply-related spurious are present in the low-frequency, low-power noise floor shown in fig.3, a lot of these tones can be seen in fig.8 along

with other tones of unknown origin 20Hz above the supply-related sidebands that surround the fundamental tone and its harmonics. All these tones lie at very low levels, however. Intermodulation distortion with an equal mix of 19 and 20kHz tones was extremely low in level, even at 100W into 4 ohms (fig.9).

The Boulder 1151 features superb measured performance.—John Atkinson

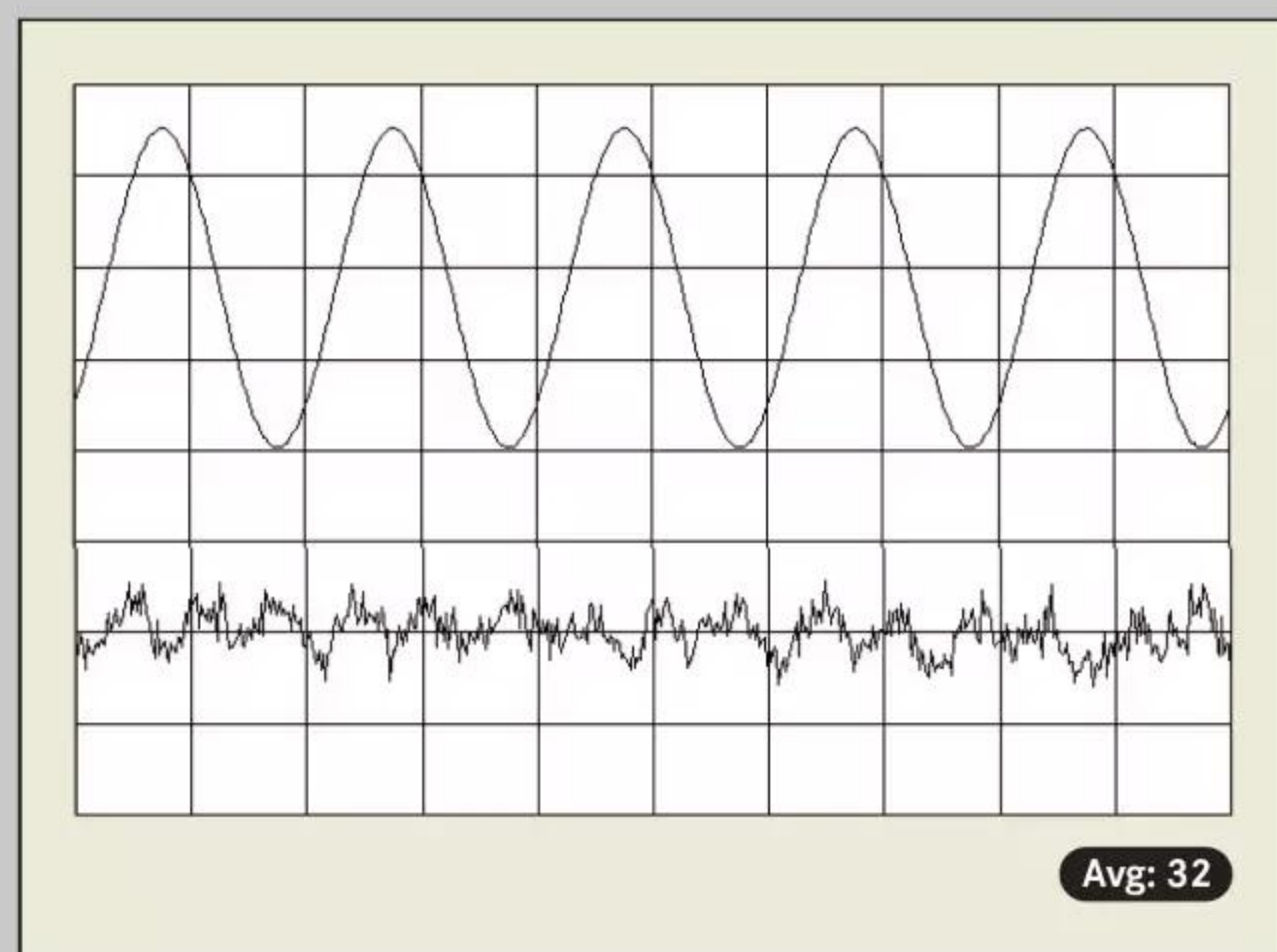


Fig.7 Boulder 1151, 1kHz waveform at 100W into 8 ohms, 0.0007% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).

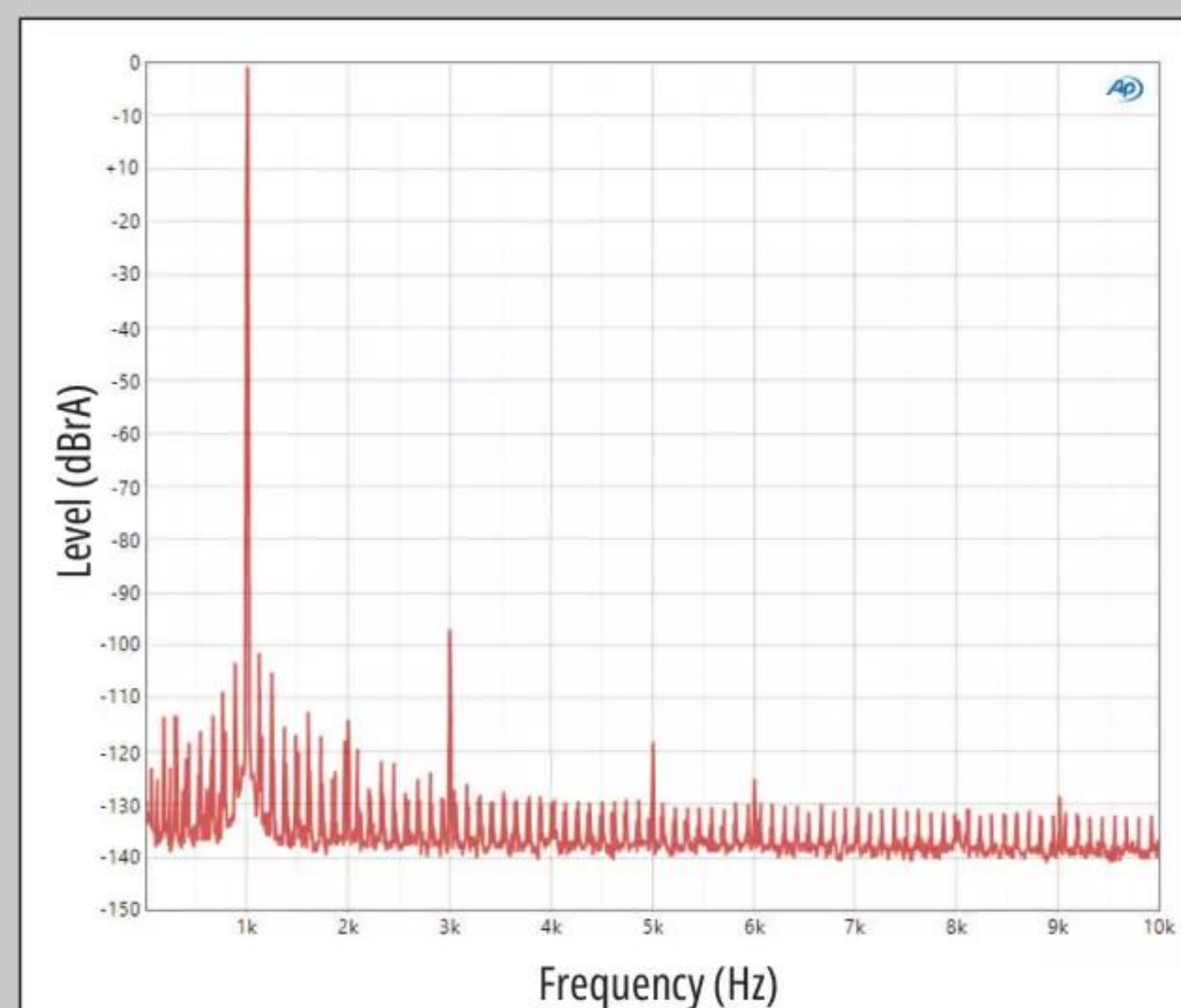


Fig.8 Boulder 1151, spectrum of 1kHz sinewave, DC–1kHz, at 100W into 8 ohms (linear frequency scale).

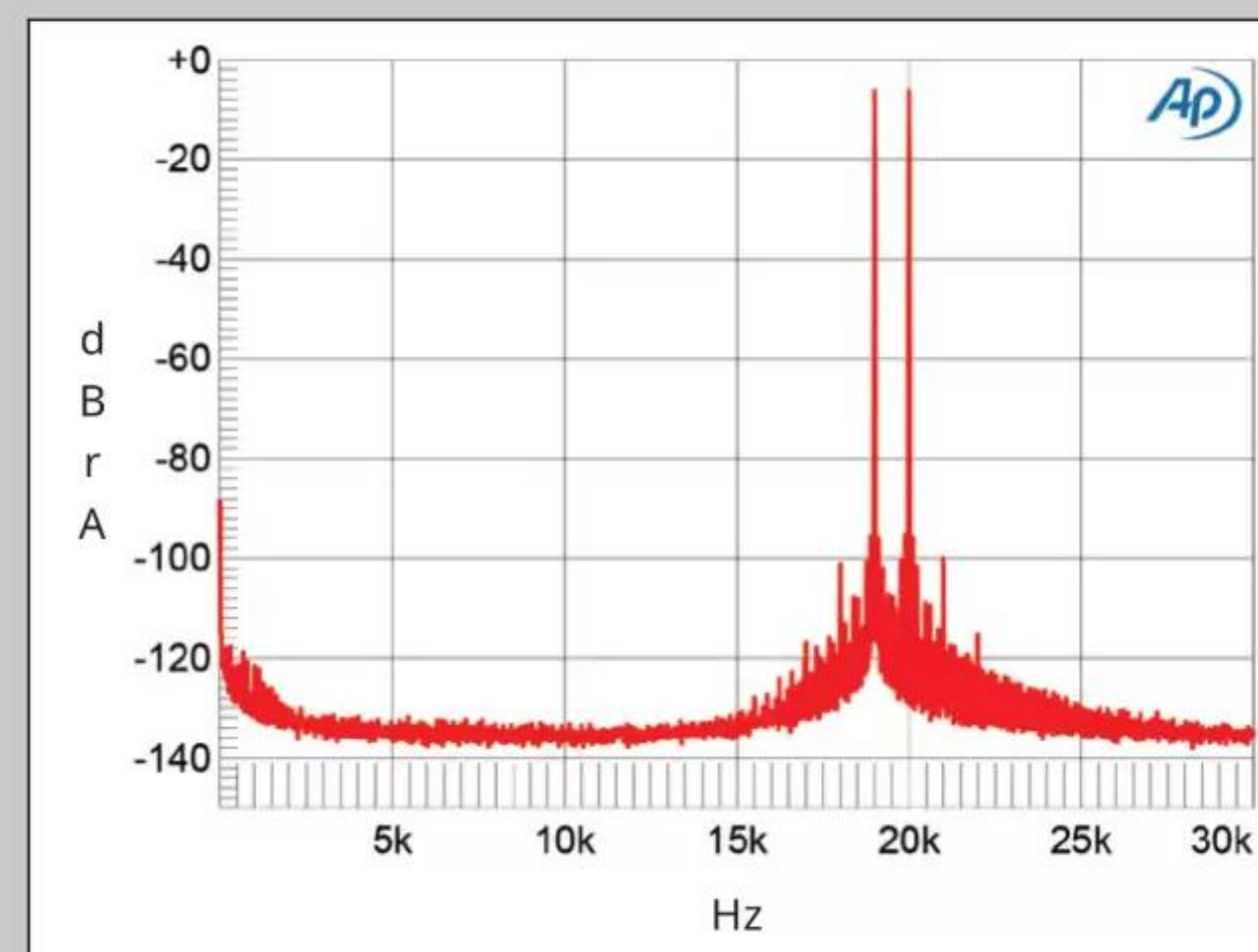


Fig.9 Boulder 1151, HF intermodulation spectrum, DC–30kHz, 19+20kHz at 100W peak into 4 ohms (linear frequency scale).

Aretha (24/96 FLAC, Rhino Atlantic/Qobuz).³ Bass was solid and perfectly controlled, and the sound was warm and inviting. Colors may have been a bit homogenized (again compared to my reference amplifiers), but the presentation was marvelously illumined and *anything but* monochromatic.

I decided to compare a recent Recording of the Month, Alec Frank-Gemmill's recording of Mozart's Horn Concertos (on B flat horn) with the Swedish Chamber Orchestra under Nicholas McGegan (24/96 WAV, Download/BIS), with Lowell Greer and McGegan's original digital recording of the concertos (on natural horn) with Philharmonia Baroque Orchestra, recorded by Peter McGrath (16/44.1 WAV, Download/Harmonia Mundi). The 1151 was no slouch at pointing out the myriad differences between the two recordings, starting with the timbres of the different horns and including color saturation.

To further test how well the 1151 could highlight differences, I compared the sound of two maximally different modern pianos captured on two different recordings from the same label: Ott's recording of Field's *Nocturnes*, cited above, and Murray Perahia's Beethoven Piano Sonatas (24/96 FLAC, Deutsche Grammophon/Qobuz). As much as I found myself wanting more bottom from both instruments, the difference in the basic sound of the two recordings (effusive warmth vs clanginess) stood out in sharp relief against a stunningly silent backdrop.

Round two

It sometimes helps to take a break and establish critical distance before continuing. From that vantage point, I began with two recent recordings of Schubert's song cycle, *Die schöne Müllerin*, that I chose for 2024's R2L4: baritone Konstantin Krimmel's account with pianist Daniel Heide (24/96 FLAC, Alpha/Qobuz) and tenor Julian Prégardien's with Kristian Bezuidenhout on fortepiano (24/48 FLAC, Harmonia Mundi/Qobuz).

If you'll pardon what may seem (at first) a digression, I heard how much more immediate, transparent, and realistic these men's voices sound when I began listening through the dCS Varèse. I regret the cliché, but it really was as if I was hearing the recordings for the first time. I have never heard digital sound so alive, human (as in pliable and emotionally available), present, and clear as I do with Varèse. The Varèse was the ultimate source, but the Boulder 1151 monoblocks enabled me to hear what it can do.

After going back and forth on five tracks, Aretha's "Bridge over Troubled Water," Ott's recording of Field's first Nocturne, Perahia's recording of Beethoven's "Hammerklavier" Sonata, the Modern Jazz Quartet's "Vendome," and Yello's "Electrified II" from *Toy* (24/48 FLAC, Polydor/Qobuz), the scorecard read as follows.

Costwise, comparing D'Agostino Momentum M400 MxV monoblocks (\$79,950/pair) with monoblocks that cost over \$32,000 less ain't fair. For the price of a helluva lot of eggs, you get more air, a more realistic sense of three-dimensional space, more definition and clarity between rapidly sounded notes, and an extra sense of color and vibrancy that on many recordings opens a portal to the magical. The D'Agostinos were also noticeably more dynamic. Downsides to the D'Agostinos? They are brighter than the 1151s. But what they reveal is musical to the core.

For an extra \$1475 per monoblock, the Accuphase M-300s (\$24,975 each) sing fetchingly in the comparison sweet spot. They deliver bigger bass and have a uniquely satisfying midrange that, in my memory, is equaled only by the (otherwise different sounding) Pass Labs monoblocks. They also excel at depicting air, venue, dynamics, and 3D placement. The M-300s don't dazzle with vibrant transparency the way the Boulder 1151s do, but they have other means of pulling the listener in. My memory tells me that's also true of the bridgeable Moon 861 stereo amplifier (\$22,000/each),

ASSOCIATED EQUIPMENT

Digital sources dCS Varèse five-piece music system, Vivaldi three-piece music system, Rossini CD/SACD transport, EMM Labs DV2i DAC, Meitner MA3 Integrated DAC; Innuos Statement Next-Gen Music Server and PhoenixNET network switch; Small Green Computer Sonore opticalModule Deluxe (2); Broadcom/Avago AFBR-5718PZ 1GB SX-SFP, Gen 5 fiberoptic modules (2); Nordost QNet switch and QSource linear power supply (2); Sonore Audiophile Linear Power Supply; Synology 5-bay 1019+ NAS with Ferrum Hypsos linear/switching hybrid power supply; Linksys MR9000 mesh router and Arris modem; Apple 2023 iPad Pro and 2017 MacBook Pro laptop with 2.8GHz Intel i7, SSD, 16GB RAM.

Preamplifiers D'Agostino Relentless, Soulution 727.

Power amplifiers Dan D'Agostino Momentum M400 MxV monoblocks, Accuphase A-300 monoblocks.

Loudspeakers Wilson Audio Specialties Alexia V with Løke subwoofers.

Cables Digital: Nordost Odin 1, Odin 2, and Valhalla 2 (USB and Ethernet), Frey 2 (USB adapter); AudioQuest WEL Signature; Wireworld Platinum Starlight Cat8 (Ethernet), OM1 62.5/125 multimode duplex (fiberoptic). Interconnect (XLR): Nordost Odin 2 and Blue Heaven (subwoofer), AudioQuest Dragon. Speaker: Nordost Odin 2, AudioQuest Dragon. AC: Nordost Odin 2, Valhalla 2, Valhalla 1; AudioQuest Dragon and Firebird; Kimber PK10 Palladian. Umbilical cords: Ghent Audio Canare on NAS; QSource Premium DC cables with Lemo terminations for QSources; Innuos upgrade umbilical cables for Statement Next-Gen.

Accessories Grand Prix Monza 8-shelf double rack and amp stands, 1.5" Formula platform; Symposium Ultra Platform; Nordost 20-amp QB8 Mark III, QKore 1 and 6; Titanium and Bronze Sort Kones, Sort Lifts; Stromtank S-4000 MK II XT power generator, SEQ-5 Audio Distribution Bar; AudioQuest Niagara 7000 and 5000 power conditioners, NRG Edison outlets; Environmental Potentials EP2050EE surge protector/filter; Wilson Audio Pedestals; A/V RoomService Polyflex Diffusers; Resolution Acoustics room treatment; Stillpoints Clouds (8); HRS DPX-14545 Damping Plates; Marigo Aida CD mat.

Room 20' L × 16'4" W; sloped ceiling flattens out at 9'4" H.

—Jason Victor Serinus

which however are no longer in-house. In this price class, these three amplifiers—the Boulder, the Accuphase, and the Moon—provide very high quality but different musical perspectives. Listen to all three if you can.

Parting thoughts

As I prepare to head to the music room and pack up the Boulder 1151 mono amplifiers for shipment to John Atkinson for measurement, I think back to my first listen: open, clear as a bell, vital, and alive. Those are the distinguishing characteristics that stood out for me then and that remain with me now. Anything but dry or sterile, these amps bring an inner warmth and freshness to music that is best described not as a breath of fresh air but as a welcome change of seasons. Think springtime. If that description and their price hit your sweet spot, I urge you to try them to see if they'll find their way into your heart. I would not be surprised to learn that they do. ■

³ Thank you for this, Tom Fine.