

**WOMEN
IN
MUSIC**

**BETTYE LAVETTE ON
RECORD; SARAH VAUGHAN
REMEMBERED**

stereophile

ONLINE AUTHORITY:
WWW.STEREOPHILE.COM

MRSPEAKERS
AEON CLOSED-BACK
HEADPHONES
P.87



**EVERYTHING AN
AUDIOPHILE NEEDS
IN ONE BOX**

THE NAIM UNITI NOVA



IN REVIEW

AYRE ACOUSTICS'
KX-5 TWENTY
PREAMPLIFIER

PHONO
CARTRIDGES
FROM KOETSU
& KUZMA

EUROPEAN
SPEAKERS:
KEF, MONITOR
AUDIO, SONUS
FABER, STENHEIM

**SPECIAL
FEATURE:
MORE ON
MQA**

MARCH 2018

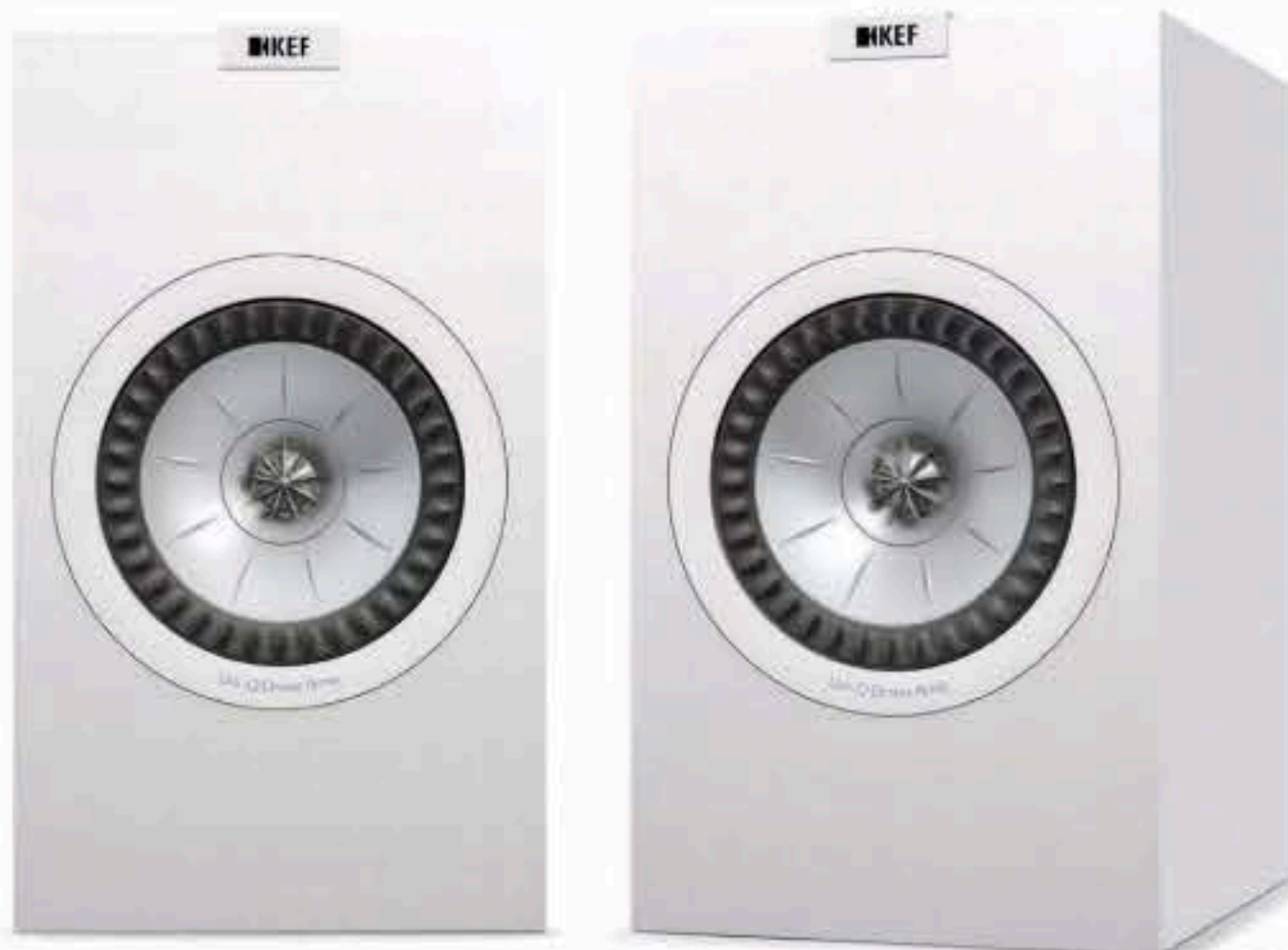
TEN: PUBLISHING

MARCH 2018 Vol.41 No.3

stereophile



p.59



p.91

FEATURES

51 History Ain't Over 'Til It's Over

Jim Austin examines the commercial and societal contexts for MQA.

59 Things Will Change

In a career marked by triumph and disappointment, Bettye LaVette has played the world, recorded albums that weren't supported, and had numerous assignations with famous music stars. And now she's made an album of the music of Bob Dylan. By Robert Baird.

65 Queen of Bebop: The Musical Lives of Sarah Vaughan

David Lander reviews Elaine M. Hayes's 2017 biography of the Divine One.



p.77

stereophile.com ■ March 2018

p.99

p.105



p.66

EQUIPMENT REPORTS

66 Naim Uniti Nova integrated amplifier-media player-D/A processor

by Ken Micallef

77 Ayre Acoustics KX-5 Twenty preamplifier

by Art Dudley

87 MrSpeakers Æon closed-back headphones

by John Atkinson

91 KEF Q350 loudspeaker

by Herb Reichert

99 Monitor Audio Silver 300 loudspeaker

by Kalman Rubinson

105 Sonus Faber Guarneri Tradition loudspeaker

by John Atkinson

FOLLOW-UP

113 TAD Micro Evolution One loudspeaker

By John Atkinson

115 Tavish Adagio phono preamplifier

By Herb Reichert

SEE OUR EXCLUSIVE EQUIPMENT REPORT ARCHIVE AT WWW.STEREOPHILE.COM

Stereophile (USPS #734-970 ISSN: 0585-2544) Vol.41 No.3, March 2018, Issue Number 458. Copyright © 2018 by TEN: Publishing Media, LLC. All rights reserved. Published monthly by TEN: Publishing Media, LLC., 1212 Avenue of the Americas, 18th Floor, New York, NY 10036. Periodicals Postage paid at New York, NY and additional mailing offices. Subscription rates for one year (12 issues) U.S., APO, FPO, and U.S. Possessions \$19.94, Canada \$31.94, Foreign orders add \$24 (including surface mail postage). Payment in advance, U.S. funds only. POSTMASTER: Send all UAA to CFS. (See DMM 707.4.12.5); NON-POSTAL AND MILITARY Facilities: send address corrections to Stereophile, P.O. Box 420235, Palm Coast, FL 32142-0235. Mailing Lists: From time to time we make our subscriber list available to companies that sell goods and services by mail that we believe would be of interest to our readers. If you would rather not receive such mailings, please send your current mailing label, or an exact copy, to: Stereophile, Mail Preference Service, P.O. Box 420235, Palm Coast, FL 32142-0235. Subscription Service: Should you wish to change your address, or order new subscriptions, you can do so by writing to the same address. Printed in the USA.

KEN MICALLEF

Naim Audio Uniti Nova

INTEGRATED AMPLIFIER—MEDIA PLAYER—D/A PROCESSOR

Audiophiles are oblivious to the low-end music-reproduction medium that's currently staging a comeback: the cassette tape.¹ I've adopted the cassette craze in my own small way. I glory in the trusted mixtape, which I play in the stereo cassette deck of my 1990s Toyota. An automobile is a dearly cherished possession in New York City; when I cruise the outer boroughs on Sunday, I want tunes galore. So I retrieved my 1996 Aiwa cassette deck, and, attic-bound as it had been for 20 years, it was in need of repair. Via Yelp, I came across Hi-Tech Electronics, a small repair-everything-electronic shop at the east end of Canal Street, in New York's Chinatown, and a mother lode of classic audio gear and audiophile nostalgia.

Hi-Tech brims to the rafters with electronics from the 1960s through the 1980s: AM/FM console radios, bookshelf speakers, turntables, cassette decks, tuners, shortwave radios, integrated amplifiers, and—taking up an entire wall—classic stereo receivers. Currently experiencing their own renaissance of renewed customer confidence, vintage stereo receivers appeal to those who want to dip their toes in plebeian audio for little cost. (*Stereophile's* occasional Musicians As Audiophiles interviews have confirmed the appreciation for vintage audio.) Perched on Hi-Tech's showroom wall I saw every receiver imaginable, from Fisher, Kenwood, Onkyo, Pioneer, Sansui, Sherwood, Sony, Technics, Yamaha—even Marantz. Those beauties' backlit tuning dials and faux wood cabinets are as comforting to me as Ovaltine and meatloaf.

Gazing at those vintage products, I couldn't help thinking: What is today's combination integrated amplifier-DAC-

streamer-player-ripper-NAS if not a glorified stereo receiver? I had in mind something like the Pioneer SX-1010—which was proclaimed, in a 1974 ad, to be “The finest stereo receiver the world has ever known.”

In 1974, the Pioneer SX-1010 sold for \$700. Today, Naim's Uniti Nova integrated amplifier-media player-D/A processor lists for \$6995. Like everything else, today's hi-fi gear reflects contemporary technology, consumer trends, and the ever-rising cost of living.

Design

The Uniti Nova is basically an amplifier plus a turbocharged computer that offers, in a single oblong metal box, almost everything audio that one could desire. And oh, what a beautiful box it is. The Uniti Nova's case of brushed and CNC-machined aluminum has two long, finned heatsinks as side panels; a sleek-to-the-touch, illuminated volume dial on the top panel that practically spins off rays of light; and a 5", color LCD display. Whether selecting titles via Internet radio, Bluetooth or WiFi, Tidal, Spotify, or a NAS drive—or coupling its internal DAC to a CD transport—all of the Nova's functions other than power-up are accessible from that lovely front display, Naim's app, or the included remote control. The remote seems to awake when it senses you're near—before you even touch it, its touchpad pulses a

¹ “The bestselling cassette of 2016 was the *Guardians Of The Galaxy* soundtrack, which moved at least 4,000 copies,” noted Hugh McIntyre in *Forbes* on May 8, 2017: “Cassettes Are Making a Comeback, But Which Artists Are Actually Selling Them?” <https://tinyurl.com/ls2r4jq>. “Other successful [cassette] titles that sold well in 2016 ... include Eminem's *The Slim Shady LP* and Prince and the Revolution's legendary *Purple Rain*,” he wrote.

SPECIFICATIONS

Description Remote-controlled, network-connected media player, tuner, streamer, D/A processor, integrated amplifier. Access to Apple AirPlay, Google Cast, Spotify Connect, Tidal, Bluetooth aptX HD, vTuner Internet radio, UPnP, WiFi. Onboard memory: 512MB RAM, 8GB eMMC flash, 50MB RAM (for audio input buffering). Compatible file types: WAV, FLAC, ALAC, AIFF, MP3, AAC, OGG (16/48), WMA (16/48), DSD64 & 128).

Analog inputs: 2 RCA, 2 DIN. Digital inputs: 2 optical TosLink (24-bit/96kHz), 2 coax RCA (24/192); 1 BNC (24/192k), HDMI ARC, 2 RCA, 2 USB Type A (front/rear), SDcard. Analog outputs: 1 pair unbalanced (RCA), 1 DIN, 3.5mm headphone output, 2 pairs 4mm sockets for loudspeakers. Power output: 80Wpc into 8 ohm (19dBW), 155Wpc into 4 ohms (18.9dBW). Frequency response: -1.5dB at 20kHz from S/PDIF to speaker. Signal/noise:

96dBA ref. 80W (analog volume set to 2/3 full power). THD+noise: 0.015% at 2/3 full power into 8 ohms, S/PDIF to speaker. Output impedance: 0.22 ohm at speaker terminals. Power consumption: Deep sleep, <0.5W; Standby, <5W; Server mode, <20W; playing loud, 140W typical. **Dimensions** 17" (432mm) W by 3.75" (95mm) H by 10.4" (265mm) D. Weight: 28.7 lbs (13kg). **Serial number of unit reviewed** 422195.

Price \$6995. Approximate number of dealers: 70. Warranty: 2 years. **Manufacturer** Naim Audio Ltd., Southampton Road, Salisbury SP1 2LN, England, UK. Tel: +44 (0)1722-426-600. Web: www.naimaudio.com. US distributor: Audio Plus Services Inc., 156 Lawrence Paquette Drive, Champlain, NY 12919. Tel: (800) 663-9352. Fax: (866) 656-0686. Web: www.audioplusservices.com.



It was one of the most musical, fast, flowing, and tonally rich solid-state amplifiers I've ever heard.

soft circle of light that's mirrored by the Nova's own volume dial. It seemed like a dance of fireflies floating around my small Manhattan quarters.

Replacing the SuperUniti all-in-one, the 28.7-lb Nova is the flagship of Naim's Uniti line, which also includes the Atom all-in-one player, Star CD player/ripper, and Core hard-disk server. The Uniti crew does it all: playback of music files in AIFF, ALAC, FLAC, and WAV formats, all up through resolutions and sample rates of 32-bits and 384kHz;

lossy formats MP3, AAC, WMA, and Ogg Vorbis; and DSD64 and 128. The Nova's built-in Bluetooth and WiFi can stream Apple AirPlay, Apple Music, Google Chromecast, Spotify Connect, and Tidal, and it's Roon ready. The Nova's class-A/B integrated amplifier, based on Naim's NAIT, can output 80Wpc into 8 ohms; it and the player's DAC, the latter enabled with a Burr-Brown PCM1791A chip, and the separate preamplifier output, all distinguish the Nova from its Uniti kin.

The “Uniti Nova boasts outstanding new technology which really sets it apart from the rest of the range,” boasts Naim online. “Its circuitry features the highest quality discrete components, superior isolation, more inputs than you can shake a stick at and a massive toroidal transformer that brings a whole new meaning to the term heavyweight. [The] Uniti Nova is as good as an all-in-one player can get.”

I found Naim’s marketing approach, Quick Start Guide, and online materials light on facts, and grilling a Naim representative for details created as many questions as answers. Naim’s director of marketing and communications, Ryan Latham, told me about the massive rotary volume dial on the top panel:

There’s a super smooth, ball bearing-raced volume control with damping grease on the top of the product. The actual volume control is a discrete component, digitally controlled analogue volume control designed by Naim. It has a 95dB range, accurate channel matching and constant input and output impedance [which] maintains the frequency response irrespective of volume level. . . . Now, with all signals in the digital domain we can simplify the analogue volume control. From -64dB to -95dB (very quiet listening levels) we introduce digital attenuation in addition to the analogue attenuation. . . . This allows us to remove 1/3rd of the analogue volume control [which improves] the sound quality of the volume ranges 0 to -64dB due to the reduction in component count and parasitic effects.

Unsurprising, given the Uniti Nova’s beautiful appearance, is the news that each unit is hand-built by one of Naim’s 180 workers in Salisbury, England. Naim is equally proud of the Uniti Nova’s component parts, which include leaded polystyrene film capacitors. “Polystyrene is an excellent dielectric having low dielectric absorption, low leakage, stability with temperature and voltage,” Latham wrote. “We also use through-hole resistors and -transistors in key locations such as filters and feedback circuits. And large leaded components lower microphonic noise and minimise thermal modulation. We [use] custom made power supply capacitors, and a custom made 770VA Nuvotem Toroidal transformer.”

The Uniti Nova’s front panel is minimalist, even Spartan. There are only a USB Type A input, a 3.5mm headphone jack, the display, and to the right of the display four flush-mounted buttons for, in descending order, Power/Standby, Play/Pause, Input Selection, and Favorites. The remote’s functions mirror those on the front panel, adding buttons for Clock, Brightness, Now Playing, Next, Previous, Multi-room, Mute, and Home.

The Nova’s rear panel is only slightly more populated. There you’ll find an IEC power receptacle, two pairs of banana-only speaker posts, an SDcard slot, an Ethernet receptacle, USB and HDMI inputs, DAB/FM connector, and five digital inputs: two optical TosLink (up to 24/96), one BNC (up to 24/192), and two coaxial RCA (up to 24/192). Below those are four pairs of analog inputs (two RCA, two

MEASUREMENTS

I measured the Naim Uniti Nova using my Audio Precision SYS2722 system (see the January 2008 “As We See It”) and before I did so, I installed the Naim app on my iPad mini and used it to reset the Naim to the factory default settings. (The Uniti had no trouble logging on to my WiFi network.) Usually, before I test an amplifier, I precondition it with both channels driving a 1kHz tone at one-third power into 8 ohms for an hour. However, the Naim turned itself off after 15 minutes, displaying the message “Over temperature, please

wait for the product to cool down.” The top panel above the side-mounted heatsinks was indeed very hot, at 118.1°F (47.8°C). After the Uniti Nova had cooled down a bit, it turned itself back on and I continued the testing.

Looking first at the analog inputs, the maximum voltage gain at 1kHz from the speaker terminals into 8 ohms measured 35.35dB. The gain at the preamplifier outputs was 6.7dB. These inputs preserved absolute polarity (ie, were non-inverting) at all three sets of outputs. The input impedance was a usefully high 50k ohms at low and middle frequencies, dropping inconsequentially to 42k ohms at 20kHz.

The headphone output impedance was extremely low, at 0.5 ohms at all audio frequencies. The output impedance at the speaker terminals was 0.3 ohm at all audio frequencies; as a result, the modulation of the Naim’s frequency response with our standard simulated loudspeaker² was just ±0.2dB (fig.1, gray trace). The response is down by 2dB at 20kHz, and, peculiarly, it drops off very rapidly above 20kHz. When I looked at the Uniti Nova’s reproduction of a 1kHz square-

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

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

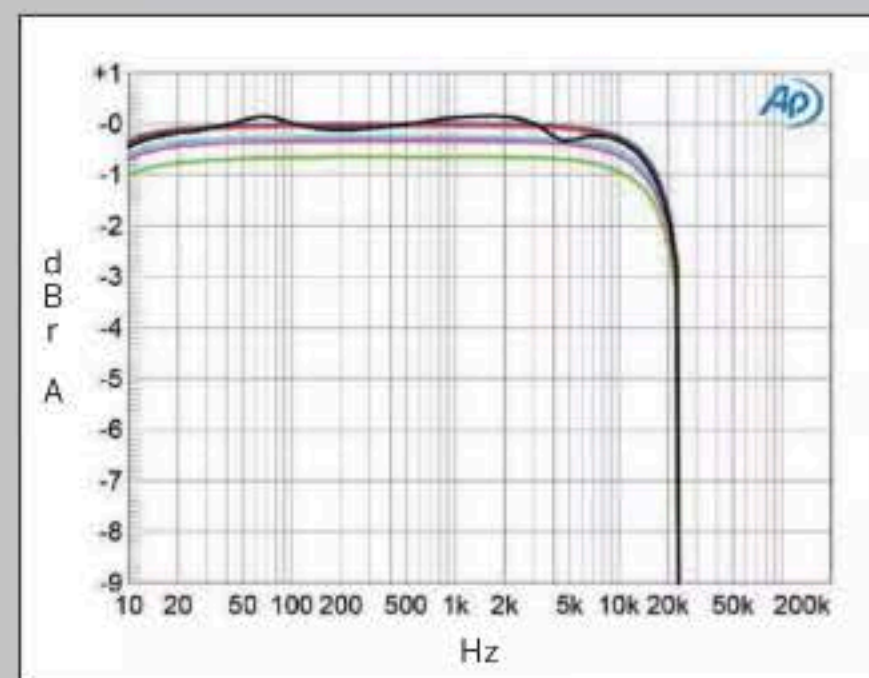


Fig.1 Naim Uniti Nova, analog input, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (1dB/vertical div.).

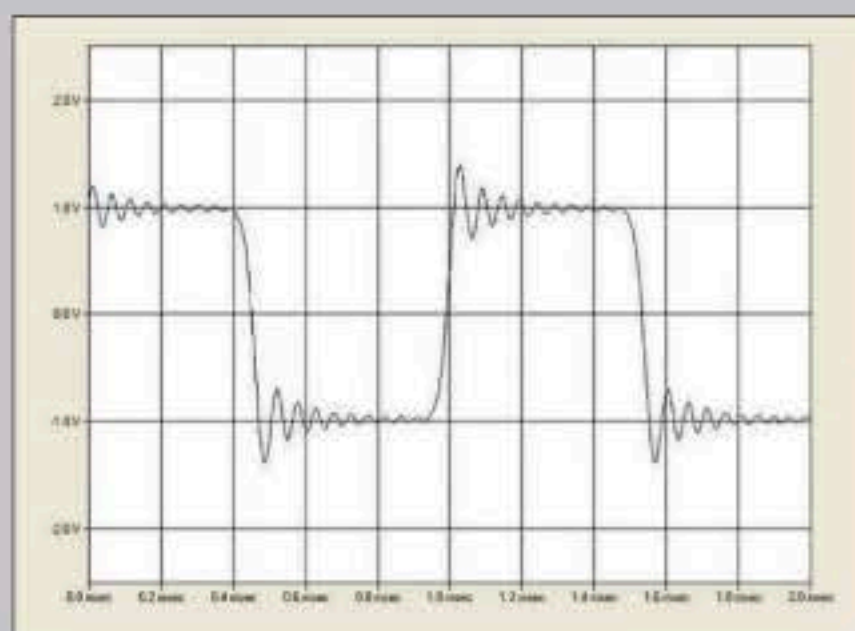


Fig.2 Naim Uniti Nova, analog input, small-signal 1kHz squarewave into 8 ohms.



Fig.3 Naim Uniti Nova, analog input, small-signal 10kHz squarewave into 8 ohms.

5-pin DIN), two preamplifier outputs (one 5-pin DIN, one RCA), and a switch to lift the ground.

Setup

The Uniti Nova is heavier than it looks. I wrestled it into my equipment rack, where it remained for the duration. I used Auditorium 23 speaker cables, and interconnects by Audio-Quest, DiMarzio, Morrow Audio, and Shindo Laboratory to connect my CD transport and phono stage to the Naim. My Western Digital external hard drive was connected using an AmazonBasics USB 3.0 link.

When it comes to setting up digital components, I'm no Michael Lavgna, but I've reviewed enough CD players, USB DACs, and the like to know my way around. Still, I was mildly apprehensive about the many options and functions possible with the Uniti Nova. After ditching the Quick Start Guide, I found Naim's online support section to be a logical, orderly, and essential guide to understanding every aspect of the Nova's setup.² Click Playing Music for in-depth instructions for setting up Internet radio, streaming, USB and HDMI, analog,



Cover art, metadata, and controls are displayed by the Naim app.

multiroom, Roon, preamplifier out, and more. Pairing the remote-control handset to the Uniti was child's play, as was downloading Naim's app to my iPhone.

The Uniti Nova acclimated to my Greenwich Village crib for two months, streaming tunes from my iPad mini. I then inserted it in my network with a CAT6 Ethernet cable between Nova and router.

Listening to the Radio

First I played MP3 files from iTunes on my PC. After I'd connected it to my router, the Nova's display showed the outlines of a pyramid against a rectangle: Nova to PC, I presume. That stark image looked rather ominous, like a biohazard warning. But tunes played; all was well. I moved on.

Much to my surprise, I quickly became addicted to what at first seemed

the Uniti Nova's most meager asset: Internet radio. There are many options within the Nova's Internet radio menu; choosing by genre and country, I found hundreds of stations,

² See www.naimaudio.com/product/uniti-nova/support.

wave (fig.2), I understood what was happening. The overshoot and ringing indicate that the Naim converts its analog inputs to digital, apparently with a sampling rate of 48kHz. This means, of course, that a 10kHz squarewave will be reproduced as a sinewave (fig.3), all the odd-order harmonics that contribute to the square shape being stripped off by the anti-aliasing filter. The volume control operated in steps of approximately 0.4dB, with the unity-gain setting at "43" of a possible 100. However, as set the analog inputs overloaded at 2.65V, which means that source components with a maximum output level higher than this should be avoided.

Channel separation via the analog inputs was good rather than great, at 71dB R-L and 84dB L-R at 2kHz, decreasing by 20dB at the top of the audioband (not shown). Spectral analysis of the Naim's low-frequency noise floor (fig.4) revealed a somewhat high level of random noise, as well as AC supply components at 120 and 240Hz. (The measurements were taken with the Audio Precision's output floating and the Naim's rear-panel switch set to Grounded, the default position, which gave the lowest level of supply harmonics.) The unweighted wideband signal/noise ratio, taken with the input shorted to ground but

the volume control set to its maximum, the worst case, was just 63.9dB ref. 1W into 8 ohms. This improved slightly, to 66.6dB, when the measurement bandwidth was restricted to the audioband, and to 69.3dB when A-weighted.

Figs. 5 and 6 plot the percentage of THD+noise in the Naim's output against power into 8 and 4 ohms. Specified as delivering 80Wpc into 8 ohms (19dBW) and 155Wpc into 4 ohms (18.9dBW), the Uniti Nova delivered 103Wpc into 8 ohms at clipping (1% THD+N) with both channels driven (20.1dBW), and 160Wpc into 4 ohms (19dBW). The wall voltage was a little high (123.8V) when I performed

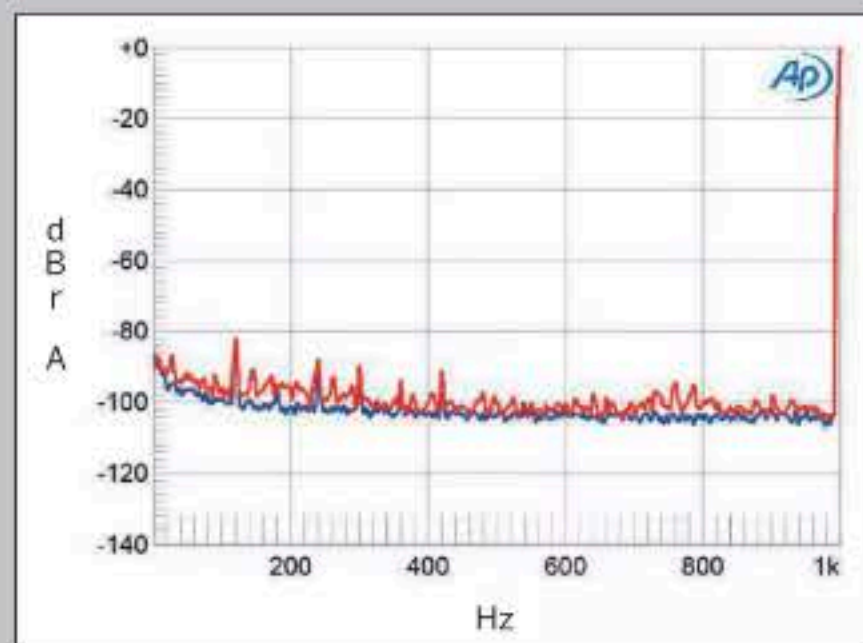


Fig.4 Naim Uniti Nova, analog input, spectrum of 1kHz sinewave, DC-1kHz, at 1W into 8 ohms (left channel blue, right red; linear frequency scale).

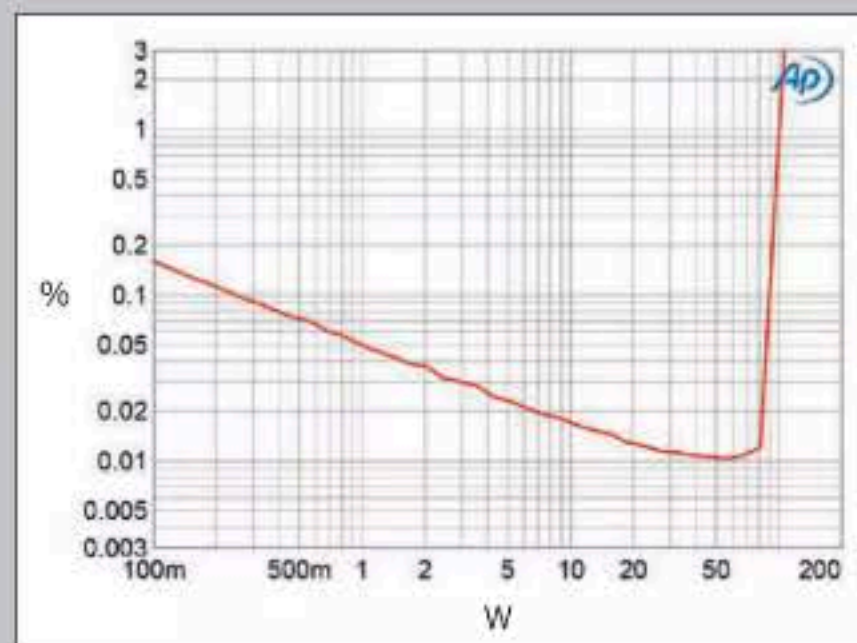


Fig.5 Naim Uniti Nova, analog input, distortion (%) vs 1kHz continuous output power into 8 ohms.

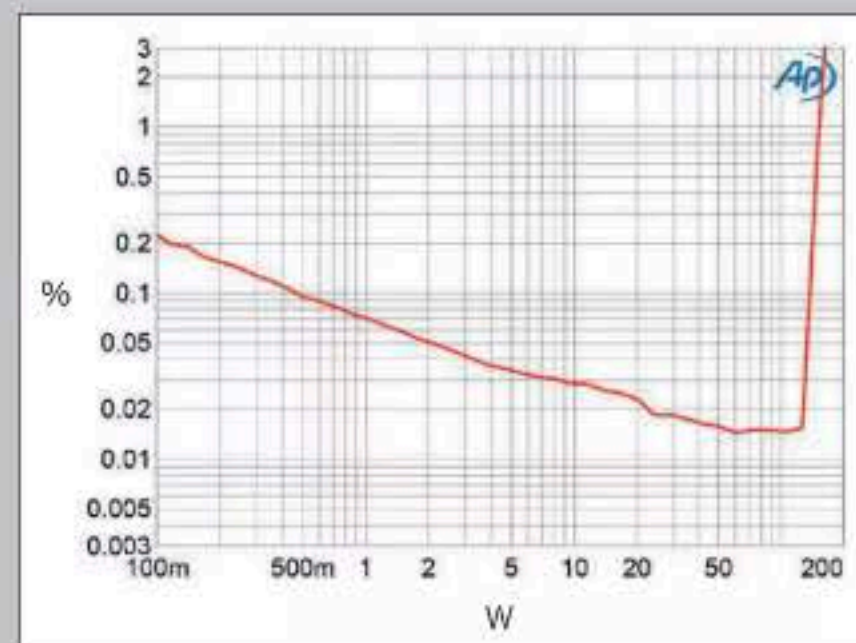


Fig.6 Naim Uniti Nova, analog input, distortion (%) vs 1kHz continuous output power into 4 ohms.

each identified by station logo and streaming rate. The sense of discovery was thrilling, station after station, from a meager 64kbps to a quite righteous 320kbps. As I cruised, I added stations to Favorites; highlights included electronica from Brazil's Acidic Infektion Radio (128kbps), and classical from Germany's SWR2 (256kbps) and TwentySound (128kbps), the latter playing Slovakian composer Vladimír Bokes's rousing Symphony 3. Choosing soundtracks from Croatia's Digital Impulse (320kbps) surprised with "Train to Florida," from Ry Cooder's score for the film *Geronimo: An American Legend*; India's Radio City Love Guru (64kbps) greeted me with more film music, "Goom Hai Kisi Ke Pyar Mein," from the 1972 Indian film *Raampur Ka Lakshman*. Norway's NRK Jazz (192kbps) delivered guitarist Terje Rypdal. The sound quality varied with the download rate, but I was too busy virtually trotting the globe to notice unless the quality was excellent—as it was from Poland's RadioZet broadcasting Ella Fitzgerald and Louis Armstrong singing Gershwin (192kbps).

I briefly roamed Tidal and Spotify: the Nova delivered the goods, each time.

Moving on to AIFF files, when I attached my Western Digital hard drive to the Nova's rear-panel USB input, the entire contents of my hard drive's music library popped up on the Naim app on my iPhone. Again, I was surprised by the Nova's ease of setup and practically instantaneous response.

Listening to Files

Now the real fun began. My hard drive organizes music alphabetically, and I had so much fun with the Nova that I barely made it past "A." Throughout my listening time, the Nova was supremely transparent to the source, with little personality of its own beyond a delicious liquidity as it projected lifelike aural images on a large stage with a consistently rich demeanor. The Nova didn't sound as tonally saturated and realistic as my Shindo separates, but it was one of the most musical, fast, flowing, and tonally rich

My hard drive organizes music alphabetically, and I had so much fun with the Nova that I barely made it past "A."

solid-state amplifiers I've ever heard in my apartment. It delivered serious jump factor, and was also what I believe Art Dudley would call a toe tapper. Anyway, file after file drove my jaw floorward as my ears reveled in the Nova's beautiful sound: more meaty and rich than filled with light and repeatedly allowing music a welcome, natural quality that was reliable, source to source.

Jimi Hendrix's *Are You Experienced* (AIFF rip from CD,

measurements, continued

this test with the Naim clipping, which goes some way toward explaining why it delivered more than its specified power. I measured how the THD+N varied with frequency at a level, 20V, where I could be sure I was looking at distortion rather than noise (not shown). While there was a rise in THD in the top two octaves, this was relatively small. The distortion itself comprised the relatively innocuous second and third harmonics (fig.7), and intermodulation distortion was respectably low in level (fig.8).

Turning to the Uniti Nova's behavior with digital data, I tested it using the Audio Precision's TosLink and coaxial S/PDIF inputs, and repeated the tests

with WAV, AIFF, and DSD files stored on an SDcard that I plugged into the rear-panel port. The Naim successfully played PCM data sampled up to 384kHz, as well as both DSD64 and DSD128 files. With the volume control set to "100," a 1kHz tone at -20dBFS gave rise to an output of 558mV at the preamplifier outputs, 158mV from the headphone jack, and 15.23V from the speaker outputs, the latter equivalent to 29W into 8 ohms. As the amplifier clips at 28.7V, this suggests that the volume control not be set above "65" with digital sources. With all but the low-level tests, I measured the Uniti Nova's digital performance at the preamplifier outputs, but with the

volume control set to avoid clipping at the speaker terminals.

The Naim's impulse response with 44.1kHz data (fig.9) indicates that the reconstruction filter is a minimum-phase type, with all the ringing following the single sample at 0dBFS. With 44.1kHz-sampled white noise (fig.10, red and magenta traces), the Uniti Nova's response didn't start to roll off until just below half the sample rate (vertical green line). An alias at 25kHz of a full-scale tone at 19.1kHz (blue and cyan traces) is therefore visible. Distortion harmonics of this tone are also visible, the second harmonic being the highest in level at -66dB (0.05%).

When I examined the Naim's digital

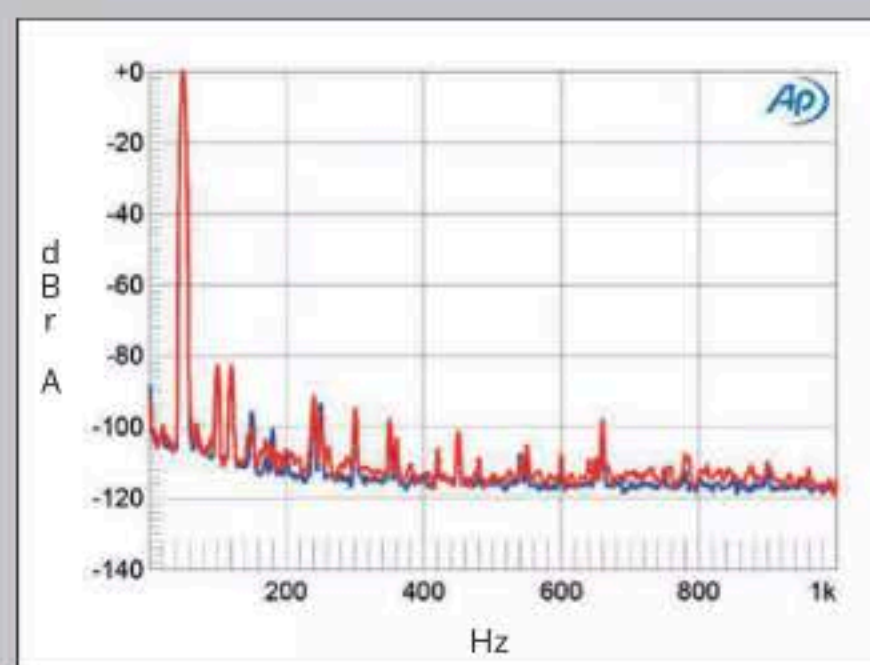


Fig.7 Naim Uniti Nova, analog input, spectrum of 50Hz sine wave, DC-1kHz, at 40W into 4 ohms (left channel blue, right red; linear frequency scale).

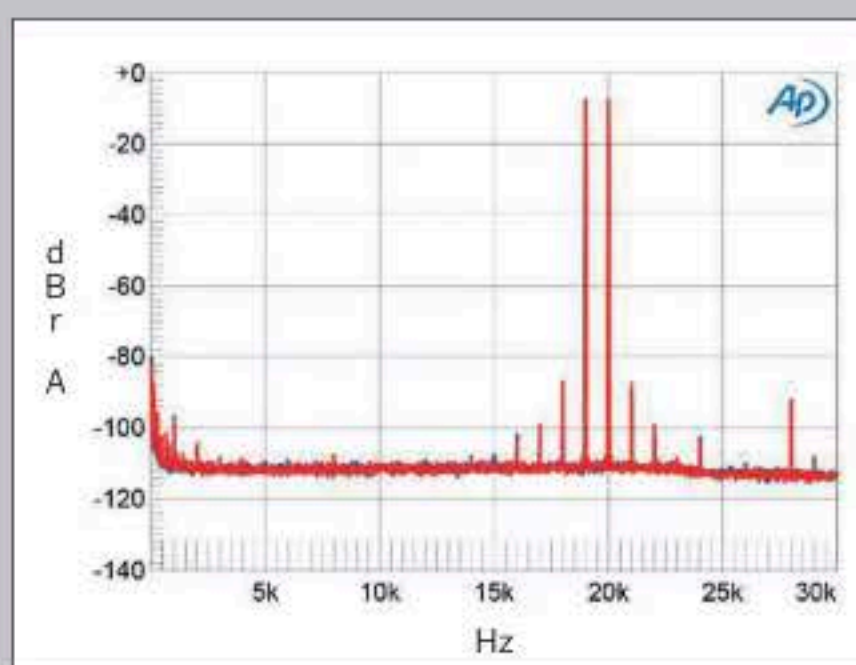


Fig.8 Naim Uniti Nova, analog input, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 40W peak into 4 ohms (left channel blue, right red; linear frequency scale).

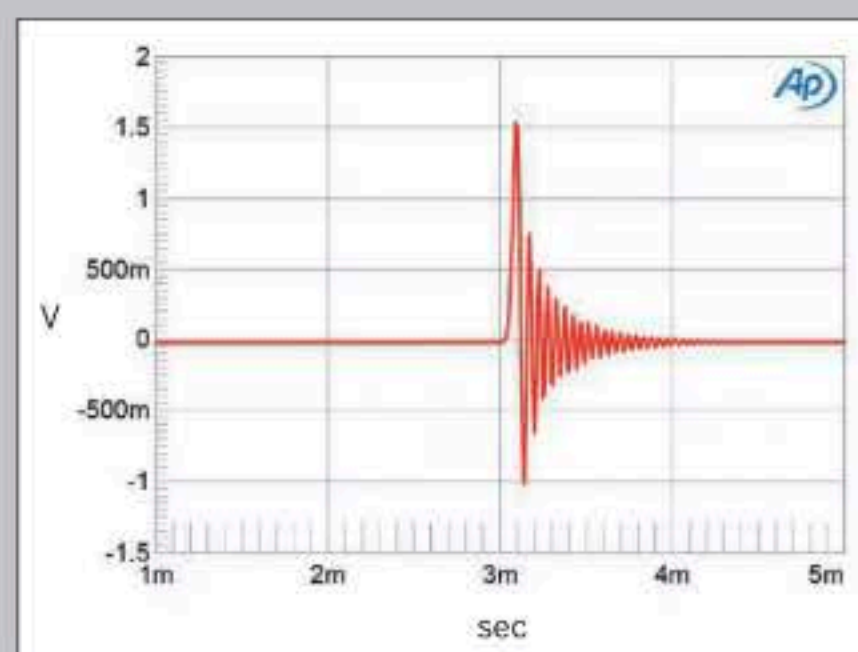


Fig.9 Naim Uniti Nova, digital input, impulse response (one sample at 0dBFS, 44.1kHz sampling, 4ms time window).

Columbia/Legacy 88765-45584-2) jumped out of my system with shocking clarity. The Nova didn't use its 80Wpc to wow with dazzling feats of dynamics—I've heard "blacker" backgrounds and more astounding dynamics through my Shindos. Rather, its power was used to create fully fleshed-out aural images and superior detail retrieval and resolution. "Purple Haze" sounded like a different song, as did the driving boogie explosion of "Fire," Hendrix's nasty guitar solo freed from the loudspeakers and floating in front of me like a ghost. Hendrix's snarling solo in "Red House" was glowing, alive, and truly revelatory.

Even as the Nova's DAC resolved AIFF files to deliver every scintilla of information, its steely resolution was always easy on the ears, contributing to a musical, entirely nonanalytical sound. Music swung like an untethered beast, offering good ambient detail and decent air around images, but never entering the dreaded realms of a "hi-fi" sound covered with a glassy, artificial sheen.

"Rock Steady," from *The Best of Aretha Franklin* (AIFF rip from CD, Atlantic 7567-81280-2), lavished on me the Uniti Nova's bountiful bass extension, and while the Naim wasn't uniformly impressive in that regard such quantity and quality of bass did appear with several recordings I played, and with power to spare. Conversely, the Nova graced Aretha's own "Day Dreaming," from *Young, Gifted and Black* (AIFF from CD, Rhino R2 71527) with light and lightness of de-

livery, the lush sound of Donny Hathaway's Fender Rhodes piano shimmering like a halo.

In These Shoes, by pianist Arturo O'Farrill and singer Claudia Acuña (AIFF rip from CD, Zoho Music 880956080826), knocked me down, then had me up and dancing, the Nova resolving the large brass ensemble and Acuña's sly vocals in bravura performances that charged my listening room like a thunder-and-lightning storm. Every track offered stone soul jumpin' jive, file after file.

Sonny Rollins's music from the soundtrack for the film *Alfie* (AIFF rip from CD, Impulse!/GRP B000003N9Q) sounded more contained and less thrilling than I recall from vinyl, but the Nova's soundstage was well layered, with a particularly fine rendering of Walter Booker's walking bass. The general sound was drier, less immediate, and smaller of stature than I recalled, but again, the Nova was transparent to the source, this being perhaps a less-than-extraordinary digital transfer.

Finally, with the help of the Heed Quasar phono preamplifier, I took some vinyl for a ride: Hank Mobley's *Dippin'* (LP, Blue Note 4209) and Barney Kessel, Ray Brown, and Shelly Manne's *Poll Winners Three!* (LP, Contemporary S 7576). Both revealed better senses of air, dynamics, and openness than any of the AIFF files. *Dippin'* is tenor saxophonist Mobley at perhaps his playing and compositional zeniths, supported by a mighty Blue Note cast. The music

measurements, continued

frequency response with S/PDIF data, I got what appeared to be anomalous results (fig.11). With 44.1kHz data (gray and green traces) the output stopped just above 20kHz, but with data sampled at 96kHz (cyan, magenta) and 192kHz (blue, red) the ultrasonic response was down by 9dB at 29kHz. These responses were measured at the preamplifier outputs; repeating them at the speaker terminals gave the same result, other than the rolloff above 20kHz being slightly faster. As a check, I measured the responses again using WAV files stored on an SD card, but found no differences from S/PDIF data. The Uniti Nova's Burr-Brown DAC chip does

function at sample rates up to 192kHz; I suspect that the Uniti Nova downsamples high-resolution data so that its DSP can be applied to those data.

When the Uniti decoded dithered 16- and 24-bit data representing a 1kHz tone at -90dBFS, with the volume control set to "100" to minimize the effect of its selfnoise, the increase in bit depth dropped the noise floor by around 20dB (fig.12), which implies resolution of greater than 19 bits. With an undithered 16-bit tone at exactly -90.31dBFS (fig.13) the waveform was symmetrical, but the three DC voltage levels described by the data are somewhat obscured by high-frequency

noise. With undithered 24-bit data (not shown) the result was a somewhat noisy sinewave.

As suggested by fig.10, the digital inputs' distortion signature was primarily the subjectively benign second harmonic, and while actual intermodulation distortion was low in level (not shown), the noise floor didn't look random. With 16-bit J-Test data, the resultant spectra (fig.14) were identical, whether I fed the Naim optical or coaxial S/PDIF data, or played the same data stored on the SD card. A slight widening of the spectral spike that represents the high-level tone at one-quarter the sample rate can be

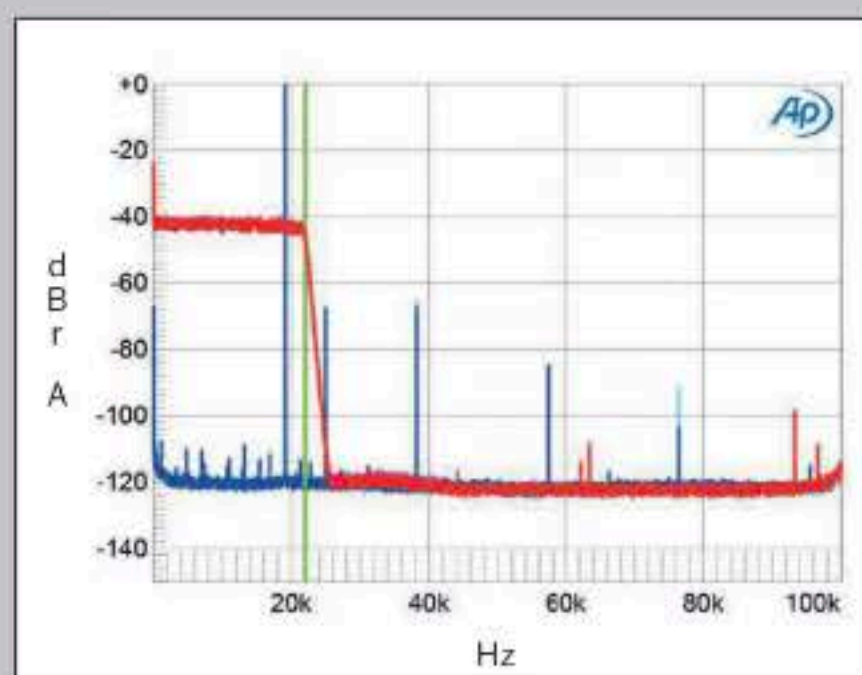


Fig.10 Naim Uniti Nova, digital input, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

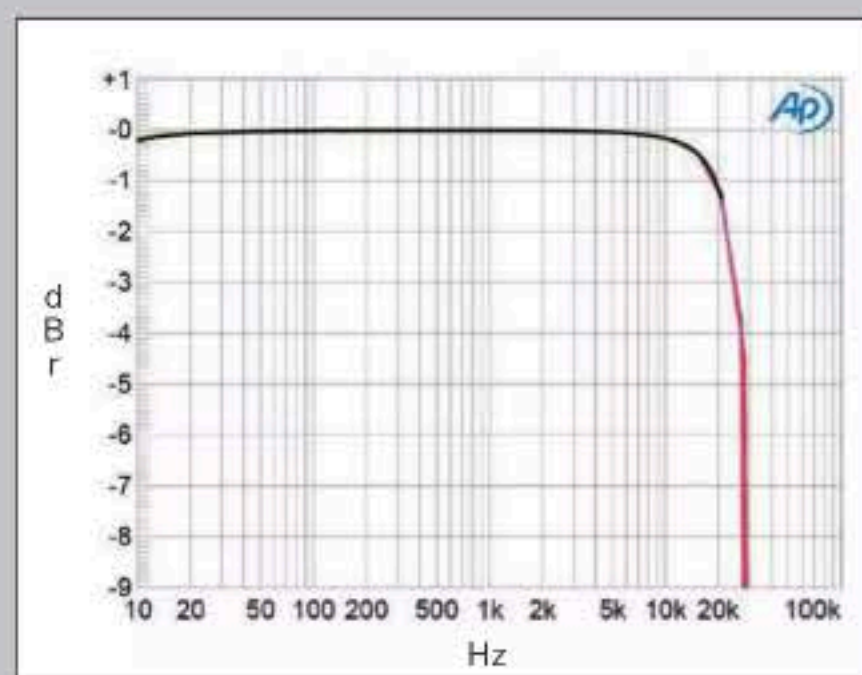


Fig.11 Naim Uniti Nova, digital input, frequency response at -12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel green, right gray), 96kHz (left cyan, right magenta), 192kHz (left blue, right red) (1dB/vertical div.).

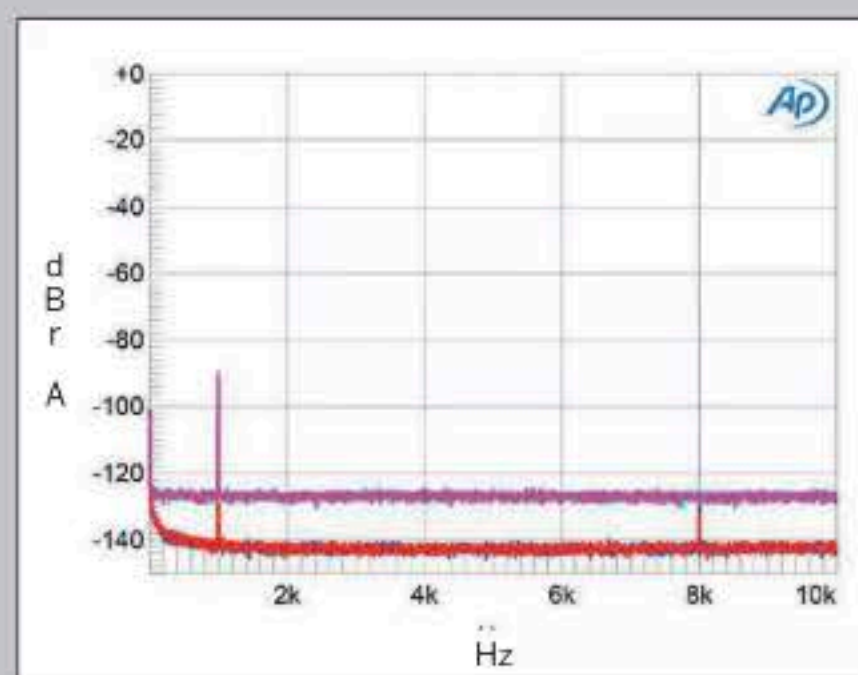


Fig.12 Naim Uniti Nova, digital input, spectrum with noise and spurs of dithered 1kHz tone at -90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

Power!

NAIM AUDIO UNITI NOVA

pops and practically cajoles, the overall tenor of the disc a mite dry, yet with drummer Billy Higgins's beautiful, shimmering cymbal work, and Larry Ridley's tight but toneful double-bass perambulations. Both LPs presented a large soundstage, but *Poll Winners Three!* was off the chart, bestowing on me incredible bass extension from Brown, and fine tonality from Kessel's guitar. Here the Nova nearly matched my Shindo gear for purity, and bettered them in extension and sheer power. *Poll Winners Three!* sounded lush, liquid, and enormous, with depth and rock-solid images.

Conclusion

As noted, I approached the Naim Uniti Nova with not a little trepidation. I'm no fan of playing computer audio files via a computer, NAS, and out-board DAC. Connections can go awry, you're often required to sync remotes and apps—sometimes the mechanics of playback outweigh the joys of listening. But with a little homework and a few dips into its online manual, I got the Uniti Nova up and running without a hitch. Its ease of setup startled me at every turn, thanks in no small part to the manual's orderly presentation of instructions and connections. Most important, the Uniti

Nova sounded fantastic with every recording format, whether I used its remote, app, or front-panel controls. Particularly transparent to sources, the Nova dependably re-created powerful, palpable, thoroughly engaging sound. Internet radio still sounded engaging, and vinyl retained its place as my favorite playback medium. The Nova only heightened my thrills, presenting practically 3D aural images with sumptuous tonality, good dynamics, and superb flow.

The Nova communicated the essence of music, and the joy of listening to it, as well as any brushed-aluminum box I've toted up the seven torturous flights to my New York City apartment.

If you're a fan of getting your music in all possible modes of delivery, Naim's Uniti Nova *must* be on your short list. You can easily spend \$6995 on an integrated amplifier—but will it sound as good as the Nova? When you add up its many features and functions—its DAC, amplifier power reserves, Internet radio, streaming capability, and exceptional build quality—and compare it with other offerings costing in the neighborhood of \$7000, the Uniti Nova is practically a bargain. Definitely, effusively, highly recommended. ■

measurements, continued

seen, but all the odd-order harmonics of the LSB-level, low-frequency squarewave are reproduced at the correct levels (slanting green line). However, a pair of sidebands at $\pm 120\text{Hz}$ can be seen in the left channel's output, these obviously related to the power supply. These sidebands

are also evident with 24-bit J-Test data (not shown), though the spectrum is otherwise superbly clean.

Other than its idiosyncratic behavior with high-sample-rate data, the Naim Uniti Nova's measured performance reveals it to be well sorted, as they say in the UK. —John Atkinson

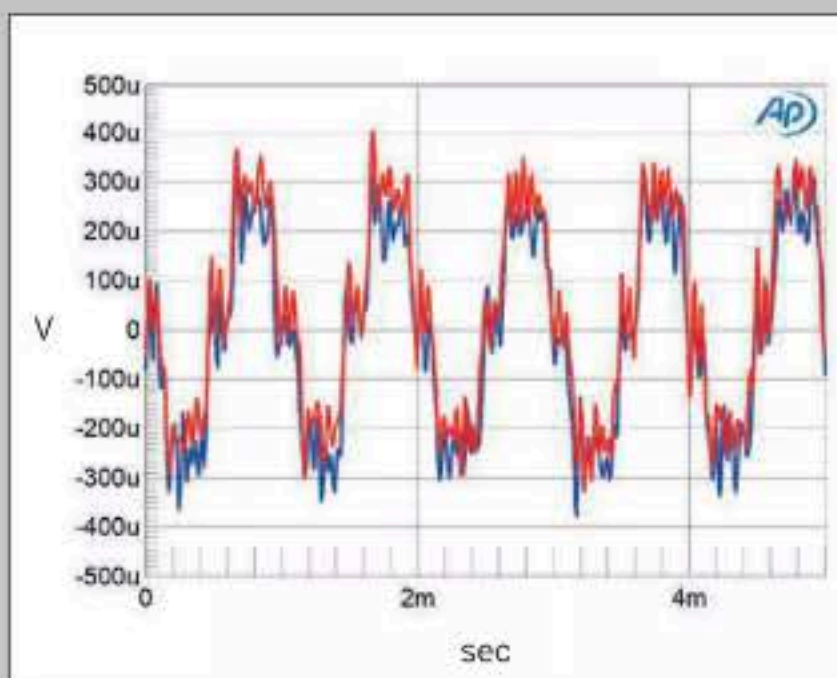


Fig.13 Naim Uniti Nova, digital input, waveform of undithered 1kHz sinewave at -90.31dBFS , 16-bit TosLink data (left channel blue, right red).

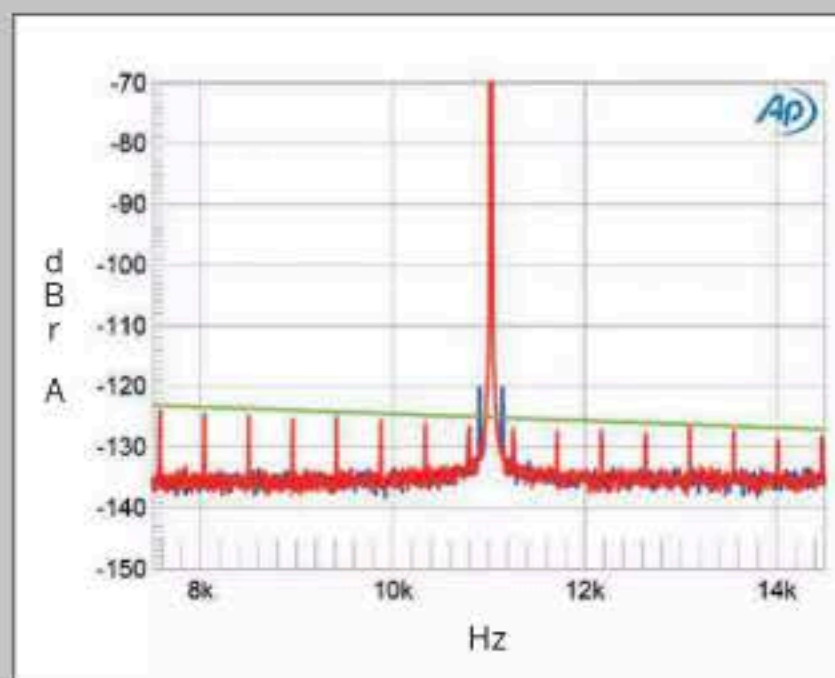


Fig.14 digital input, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS , sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit TosLink data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, $\pm 3.5\text{kHz}$.

audioquest®