

Naim NAP 250 DR

Naim's Discrete Regulation and bespoke transistor technology from its flagship Statement amplifier combine to revitalise the company's classic power amp
Review: **Andrew Everard** Lab: **Paul Miller**

Updating a classic product is a calculated risk for any company, but updating one that's been a mainstay of a range for four decades is doubly fraught.

Not that Naim is exactly new to reworking its core products: the power amplifier here, the £3495 NAP 250 DR, is the latest version of a design whose styling has actually been revamped several times to keep it up to date with current Naim looks and build – not to mention having had a circuit tweak over a decade ago. They tend not to rush things at Naim!

This, after all, is an amplifier that didn't just start in the Naim 'chrome bumper' age – it launched the whole thing in 1975, just two years after company founder Julian Vereker built his NAP 200 power amp (itself based on his 1971 design), and soon after added the NAC 12 preamp. Those first two products, along with the NAP 160, which would run through to 1986, were very much personal projects, shared only with a select group of friends before being eventually turned into production models.

The NAP 250, however, was the product responsible for pushing the Salisbury company into the limelight, and bringing it to the attention of buyers (both enthusiast and professional), retailers and reviewers [see Vintage Review, *HFN* Jan '14]. Its relatively high price of around £500 was comfortably more expensive than much of the competition – although you'd be lucky to find a used one anywhere short of twice that amount today.

True, the NAP 250 was from the outset one of those products able to divide opinion: it might have been built in accordance with Vereker's ideal of delivering 'a musical signal that I could compare with the sound of live music' – but then he tended to listen only to rock music! Thus was born the myth that

RIGHT: No mistaking the huge toroidal transformer feeding dual, discretely-regulated PSUs for the NAP 250 DR's voltage and power output stages. Naim's NA009 transistors are mounted under the central (black) heatsinking

Naim did amps superbly tailored for the needs of such material – not least due to a design aimed at powering speakers with real-world loads under dynamic conditions – but which were not perhaps the ideal all-round choices. I have to say I have never quite subscribed to that broad-brush description of the Naim sound, but it's hard not to recognise that some of its earlier products were, to put it politely, 'a rather exciting listen'!

SO WHAT'S NEW?

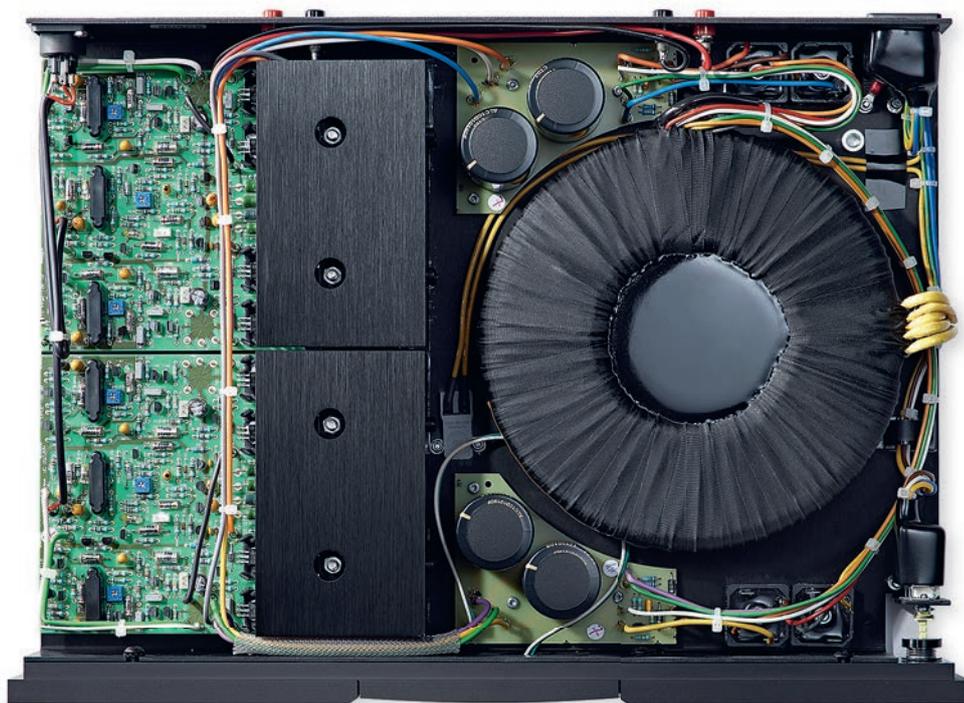
So what has happened to the NAP 250 along the way? Well, the original was rated at 70W/ch into 8ohm, and 125W/ch into 4ohm (hence the model designation), while the 2015 version is quoted at 80W/ch into an 8ohm load [see PM's Lab Report, p69]. In 1980 the original design was re-engineered into Naim's one-piece cover/chassis, and the gain increased, while the amplifier benefited from custom-made NA001 power transistors two years later, and with an upgraded transformer (the

same 500VA device used in the NAP 135, replacing the 450VA original) added in '84.

The 1989 changes were cosmetic, as chrome bumpers went out, and simpler styling, complete with olive fascias and the green backlit Naim logo, came in. The year 2002 saw those aforementioned internal tweaks and 2013 the change to an 'aluminium chassis/sleeve plus zinc diecast fascia' construction, in line with the rest of the range. Now we have the 'DR' range, extending from the £1995 NAP 200 DR all the way up to the £19,500 NAP 500 DR.

And while the big news is the adoption of the Discrete Regulator technology first seen in the last revision of Naim's power supply range, there's more to the NAP 250 DR than that: it has also gained the NA009 power transistors originally developed for the company's Statement NAP S1 power amplifiers [*HFN* Jun '15].

This allows for extremely tight pair-matching as well as ceramic mounting onto the heatsinks, for efficient thermal dissipation and electrical isolation. Naim





first used an early form of its Discrete Regulator (DR) in the power supply for the NAP 500 power amplifier, since when it has been developed and refined.

Paraphrasing the company's White Paper, 'The Naim DR uses a power transistor as the series regulating device. Output from the power transistor is monitored at the inverting input of a differential amplifier that is configured, like the subsequent stages, much like a Naim power amp.

'A very low-noise voltage reference – a "sub-surface" zener diode – is connected to the amplifier's non-inverting input and fed, via a constant current source, from the regulator output rather than the regulator input. Feedback ensures the DR exerts tight control over the output voltage.'

The result is a power supply Naim claims is 30 times quieter than that of the previous NAP 250, with separate supplies used for each channel in the NAP 250 DR, as in the NAP 300 DR and NAP 500 DR. Only in the NAP 200 DR is the technology used solely to supply a connected preamplifier, as this amp also lacks the NA009 power transistors.

From the outside, the NAP 250 DR is very much business as usual – that is,

extremely simple. The sole input is on a three-pin XLR socket (Naim supplies a cable to match the locking DIN preout sockets on its preamps) while the speaker outputs are via two pairs of 4mm sockets. The power button is on the front panel along with an illuminated logo to show the amp is switched on.

Oh, and there's a DR logo on the rear to distinguish it from the 'old' model... Incidentally, Naim will be offering updates to owners of the non-DR power amps: these are due to start around the end of 2015, at prices yet to be confirmed.

NEW CLARITY

Prior to receiving the NAP 250 DR for review, I spent some time with a 'last generation' NAP 250 to re-familiarise myself with its sound, and I had this to hand for comparisons. I used both iterations of the '250 with Naim's NAC-N 272 preamp/network player [*HFN* May '15], here partnered with the optional XPS PSU, as well as using my Supernait 2/HiCap DR integrated amp as a preamp, with the NDS/555PS used as a source.

'The Naim delights with the muscular thunder it delivers from bass drums'

ABOVE: There's minimalist and then there's Naim: characteristic 'three piece' fascia has no more than a power button to the right and an illuminated centre logo to show it's switched on

What immediately became evident was the additional clarity the NAP 250 DR brings to the party, while still maintaining that punchy, explicit and vibrant NAP 250 sound. The result isn't quite revelatory, but rather a useful increment in the sense of ease with which music is played,

encouraging higher volume levels simply because the silence from which the music emerges is all the more striking, and due to the fact that the amp stays all the more together even when it should

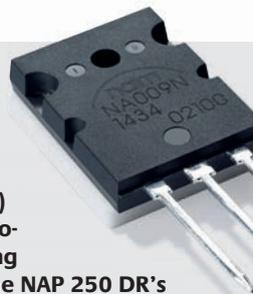
sound like it's working hard.

Obvious even from a brief listen is the sheer power of the amplifier – and here I'm not talking about the figures on paper, which are easily bettered by plenty of amplifiers selling for less than the Naim, but the way it propels music along, and the impact it can deliver. Not only does the NAP 250 DR prove capable of presenting bass with a satisfying – and often surprising – weight and slam, it also shows just how well-controlled is its low end, with speed and dexterity when a drum-kit and/or electric bass is motoring.

Playing one of my favourite system work-outs, the cover of 'Sing Sing Sing' from *Dave Grusin Presents GRP All-Star Big Band Live!* [GRP 97402], recorded in Japan back in 1993, the Naim delights with the big, muscular thunder it delivers from Dave Weckl's drums, the way the clarinet of Eddie Daniels snakes through and soars out of the mix, and the presence of what was clearly an ecstatic audience (well, by politely restrained Japanese jazz audience standards, that is). I cranked the level until those drums were fair shaking the sofa, ➤

KEEPING IT DISCRETE

Originally launched some 40 years ago, Naim's iconic NAP 250 power amp has witnessed numerous updates of which these latest changes – new Statement-inspired output devices and discrete PSU regulation (hence 'DR') – are among the most significant. The new N-type (NA009N) and P-type (NA009P) power transistors are created by photo-etching single wafers of silicon. This precise device matching ensures that current-sharing is wholly predictable across the NAP 250 DR's full performance bandwidth. Furthermore, these devices have a non-resonant epoxy case bonded onto a copper heat-spreader – even the legs are solid copper to reduce electromagnetic interaction under high current conditions. Production volumes of the NA009 transistor are now sufficient to allow Naim the luxury of such components in its discrete PSU regulation, as opposed to using integrated devices for the same purpose. Naim has always employed very tight PSU regulation, but the DR PSUs boast far lower noise [see Lab Report, p69]. PM



POWER AMPLIFIER



ABOVE: Input is via a single 3-pin XLR with pin 1 assigned to the left channel, pin 2 to the right and pin 3 as common ground. Speaker outlets are simple 4mm sockets

and still the Naim amplifier kept a solid grip on the speakers while showing every sign of having plenty more to give.

Similar qualities were very much in evidence with the Kansas City Symphony/Michael Stern recording of Britten's *Young Person's Guide To The Orchestra* [DSD64 from Reference Recordings RR-120SACD]. This is not just a great system-tester due to its encyclopaedic survey of the instruments of the orchestra, but also due to its remarkable dynamics. Listening to the great final fugue building via the Naim is a truly spectacular experience, from the fine detailing in the woodwind right through to the great slams of the full band at the end.

AN AMP TO DELIGHT

OK, so far the Naim does all the things people always tell you Naims can't, so how does it fare when you move back into what's often considered the company's comfort zone – you know, everything from grizzled singer-songwriter to guitar-heavy rock? The answer, as you might expect, is 'really rather well, thank you'.

With the sub-Floyd noodling and background audio clips of Gilmour's *Rattle That Lock* [Columbia 88875123282, 96kHz/24-bit download] the Naim makes every nuance clear, and presents the characteristic guitar sound with fine body and texture, for good or bad.

Meanwhile with the rather snarlier sound of Keith Richards' *Crossed Heart* [Mindless/Virgin 602547394002, 96kHz/24-bit download] it's hard not to jump at the sheer thump with which the drums kick off 'Heartstopper' while the often ramshackle layering of the whole album is joyously revealed. It's almost good enough to have you forgiving the 'C'mon gents, let's 'ave yer glasses' Dylanesque rendition of 'Goodnight Irene' near the end of the track-listing.

There's so much to like about the big, bold, but never brash sound of this amplifier. With the stripped-down sound of Van Morrison's 1974 *It's Too Late To Stop Now* [Warner 2BS 2760, 96kHz/24-bit download], it maintains the beautifully-captured live sound while punching the music along in sprightly fashion and keeping the focus firmly on the man's voice (which was in fine pipes in those days).

This, then, is an amp to delight, whether one is familiar with the 40 years of history behind it or just coming to it anew as a partner for the NAC-N 272 preamp/streamer, with which it works exceptionally well. It may appear to be of modest clout on paper, is slight of stature at a shelf-friendly 8.7cm tall and is remarkably fuss-free in use.

But it lives up to the promise of its near-16kg fighting weight and that massive toroidal transformer dominating the interior view with a sound that can hit hard, play it cool or just captivate with the sheer detail and musicality on offer.

The gains may initially seem minimal when compared with the model it replaces, but once the NAP 250 DR's qualities start to grow on the listener, I suspect there'll be no going back. ☺

HI-FI NEWS VERDICT

Anyone who suspects Naim is now all about Unitis and Mu-sos, sit up and take notice: this latest version of the icon of its mainstream range is a spectacularly good amplifier, with bass and attack to surprise plus subtlety and finesse to delight. Fuss-free in operation and as unassuming as ever in its looks, it shows gains in clarity and sheer impact over its predecessor. Who'd bet against it still being around in another 40 years?

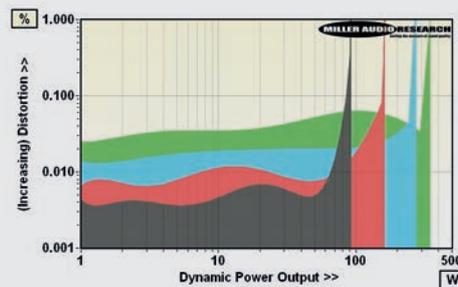
Sound Quality: 87%



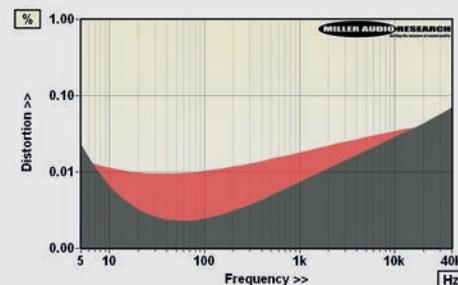
NAIM NAP 250 DR

With some four decades of development under its belt, the NAP 250 begs the question 'just how different is today's DR model from the original '250?' Those 40 years [Vintage Review, *HFN* Jan '14] have seen Naim increase its power specification by just 10W from 70W to 80W/8ohm, a minor change reflected in the performance of the amplifier's themselves – the original NAP 250 offered 2x80W/8ohm and 2x140W/4ohm while the NAP 250 DR offers 2x92W/8ohm and 2x160W/4ohm. The +2.4dB increase in output from 8 to 4ohm reflects the very tight regulation of Naim's PSU, as does the limited headroom under dynamic conditions. However, while the original amp offered 80W, 135W, 140W and just 62W into 8, 4, 2 and 1ohm loads, the modern-day version delivers a more load-tolerant 93W, 163W, 265W and 345W, respectively [see Graph 1, below].

The pattern of distortion versus frequency is largely unchanged over 40 years, amounting to 0.0024-0.038% from 20Hz-20kHz at 10W [see Graph 2, below], but versus output power is far more consistent at 0.007-0.009% from 1-80W/8ohm through the midrange. The NAP 250 DR's output impedance is still 'engineered' with a series resistor to between 0.22-0.29ohm from 20Hz-100kHz, so while the 'default' 8ohm response is -0.4dB/20kHz to -5.2dB/100kHz some slight variation will still occur into variable speaker load impedances. And what of the S/N ratio? Ironically the very original NAP 250 was the quieter of the pair – a remarkable 102dB A-wtd S/N ratio vs. the DR's merely excellent 95.3dB (re. 0dBW). Readers may view an in-depth QC Suite report for the 'DR' version of Naim's NAP 250 power amplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power versus distortion up to 1% into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) loads. Maximum current is 18.6A



ABOVE: Distortion vs. frequency from 5Hz-40kHz at 10W/8ohm (left = black; right = red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	92W / 160W
Dynamic power (<1% THD, 8/4/2/1ohm)	93W / 163W / 265W / 345W
Output impedance (20Hz-20kHz)	0.223-0.230ohm
Frequency response (20Hz-100kHz)	-0.03dB to -5.2dB
Input sensitivity (for 0dBW/80W)	105mV / 955mV
A-wtd S/N ratio (re. 0dBW/80W)	95.3dB / 114.3dB
Distortion (20Hz-20kHz re. 10W/8ohm)	0.0024-0.038%
Power consumption (Idle/Rated o/p)	12W / 345W
Dimensions (WHD) / Weight	432x87x314mm / 15.8kg