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NAIM'S STATEMENT

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Naim Statement NAC/NAP S1

Everything about Naim's range-topping preamplifier and power amps is on the grand scale, from their construction to the entirely addictive way they play music

Review: **Andrew Everard** Lab: **Paul Miller**

As the 'How much?' brigade splutter when confronted with the price-tag on a piece of exotic hi-fi equipment, 'You could buy a decent family car for that kind of money.' Except that in the case of the Naim Statement NAC S1/NAP S1 amplifier, the decent family car in question would – rather appropriately – be a factory-fresh Bentley Flying Spur.

Although the Statement amplification has to date always been shown as a whole, its three matching towers bolted together, in fact its elements appear on the Naim price-list as separate units: the NAC S1 preamplifier is £57,000, and the NAP S1 mono power amplifiers are £49,000 apiece, giving an all-up price tag for the stereo amp system of £155,000. But then everything here is on the grand scale: the preamp weighs 70kg and the power amps 107kg each, while the substantial packaging in which they arrive (each unit comes in a custom flight-case) ups the total shipping weight to 385kg.

The Statement amplifiers are the result of a Naim project dating back to 2010 – or at least that's the date when the formal exercise began. Steve Sells, Naim's Electronics Design Director, first proposed a 'cost no object' ultimate amp in 2002, not long after he joined the company, but it took the better part of a decade for it to be green-lit. Or in the case of the Statement, white-lit.

Once the idea finally got the go-ahead, it then took a relatively short three years or so to get to the point where it could be shown and demonstrated. But, as CEO Paul Stephenson explains in our interview [see p33], the problems weren't over: then they had to find a way of making it!

The Statement looks unlike anything else in the core Naim range, and comfortably goes beyond anything else the company has ever made, not least in

its power output. This is quoted as 746W into 8ohm or, as Naim reminds us, one horsepower: so do Naim's partners at the Focal factory in Saint-Étienne refer to the Statement amp as a *deux chevaux*? That power, by the way, is given as rising to 1.45kW into 4ohm, and 9kW burst power (however fleetingly) into a 1ohm load – figures PM's lab tests show are entirely credible [see p35].

MASSIVE SUPPLIES

There's some real architecture going on within the three units. Massive power supplies are anchored in the base of each, mounted vertically on brass chassis, and separated from the signal electronics by those acrylic detail elements through which the power cabling passes, and which are designed to keep eddy currents from the transformers at bay. In the NAC S1 preamp, this lower section also contains the input/output

circuitry, housed in a perforated Faraday cage – giving electrical isolation while allowing cooling – and mounted on a leaf spring assembly for mechanical isolation. A balanced connection then takes the signal on up through the preamp, and there's a similar connection back to the output section.

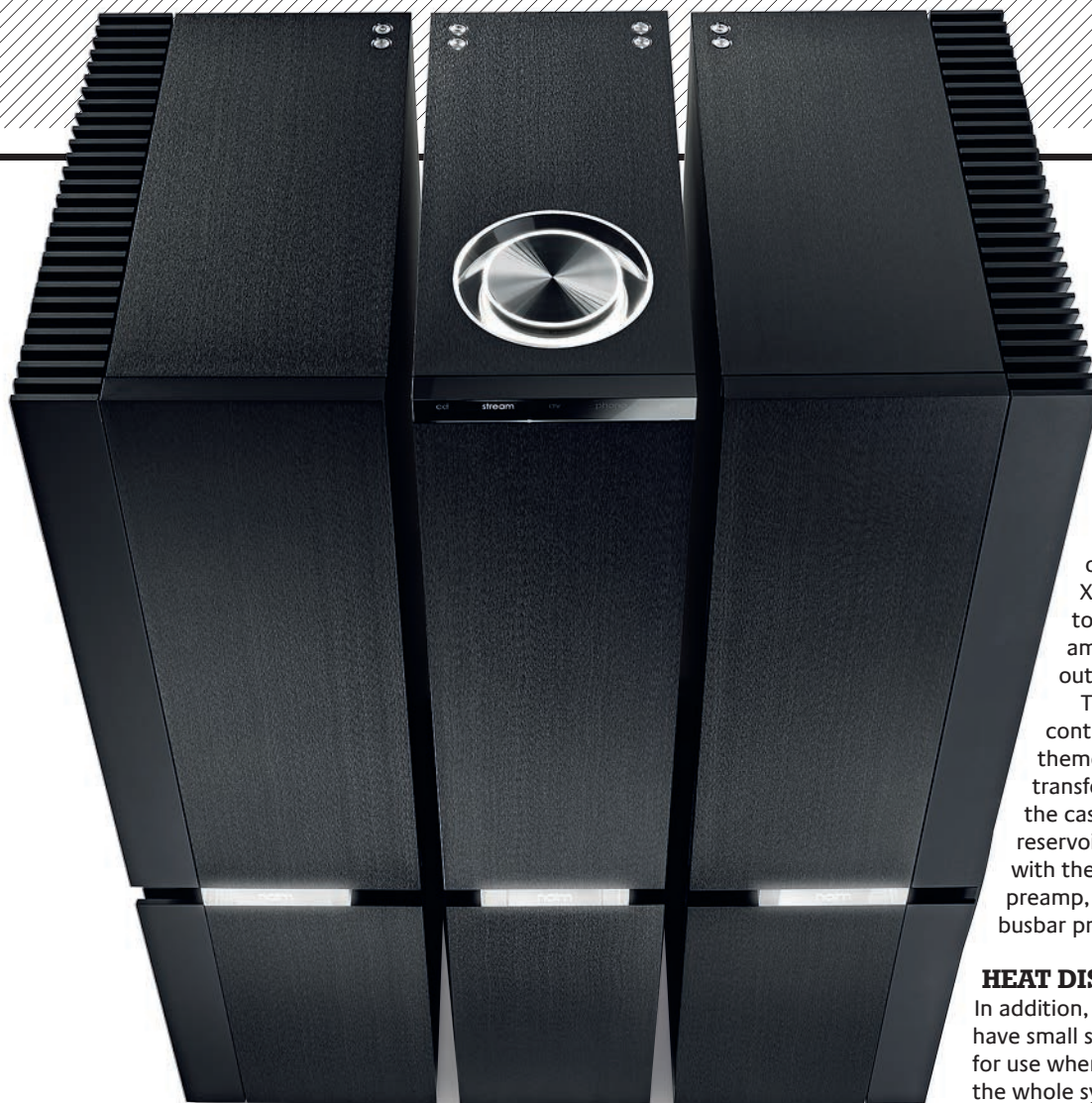
In the 'upper floors' of the preamp enclosure, the circuitry is mounted vertically, with boards back-to-back on a 3.7kg brass plate, coil springs attaching this plate to the main frame of the amplifier. Three dual-layer boards are

mounted on each side of the brass plate, the main circuitboard located between an upper board carrying the volume control relay driver circuits and a lower one for Naim's DR voltage regulators – thus locating these immediately below the sections they supply.

'It goes beyond anything else that the company has ever made'



RIGHT: The power supply, control and audio stages of the NAC (left) and NAP S1 (right) are suspended on CNC-machined frames, creating circuit 'floors' within the massive chassis



LEFT: A simple rotary volume control and touch-sensitive input selectors bely the complexity within the NAC S1 (centre): inputs can be customised and mapped to the virtual 'buttons'

of unity gain should you wish to hang the Naim off the front left/right pre-outs of an AV receiver or processor. There's one set of balanced outputs on XLRs, this being the connection to use with the NAP S1 power amps, and two sets of unbalanced outputs on four-pin DIN sockets.

The NAC P1 monoblocks continue the vertical layout theme, each with a 25kg 4000VA transformer in the lower part of the casework, along with massive reservoir capacitors, located down with the transformer and, like the preamp, with a custom-made copper busbar providing the star grounding.

HEAT DISSIPATION CHIMNEY

In addition, both pre and power amps have small switched-mode power supplies for use when they're in standby, meaning the whole system draws just 1W from the mains supply when not in use.

The amp plays things pretty simple, with just a single XLR input and a pair of speaker terminals, plus communications sockets to match those on the NAC S1, and shares with the NAP 500 a bridged layout, with two amplifier circuits per channel. Or rather four, as the power supply layout here means two channels are used for the balanced signal outputs, and another two are adapted to provide the negative and positive voltage rails.

Again there's microprocessor control to avoid any noises on switch-on, and to control the extensive protection circuitry, while the physical design includes an internal 'chimney' to help it dissipate the considerable amount of heat a 746W/ch amplifier develops. The main input and output stages are located at the top of each column, as far as possible from the power supply section.

For more on Naim's choice of output devices see PM's boxout [left], but other aspects worth noting are the use of loop negative feedback taken from before the output stage, meaning it's not affected by the speaker load, and the non-invasive

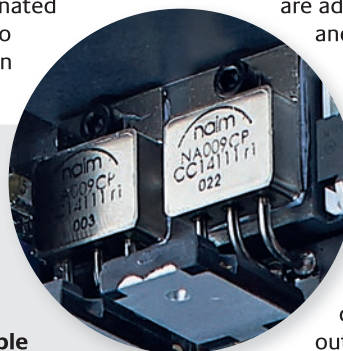
The entire construction uses only through-hole passive components and discrete transistors, and even the volume control uses what Naim calls a 'fly-by-wire' system, with an optical encoder on the volume control shaft and custom software running on an ARM microprocessor to drive a two-stage attenuator, using matched resistors and reed relays. This is designed to maintain a constant input and output resistance, and thus frequency response, across the adjustment range.

To ensure smooth operation an IC volume control kicks in momentarily while the level is being adjusted, then gets out of the way smartish as soon as the required setting is achieved.

The prosaic stuff? The NAC S1 provides three inputs on RCA phonos, three on DINs and two on XLRs, with adjustable gain and customisable mapping to the five input selector options – designated as CD, Stream, AV, Phono and Aux – and the option

CUSTOM TRANSISTORS

There's much that's bespoke about the NAP S1, not least its in-house designed power transistors. Naim wanted its amp to combine 'speed' and 'grunt' with as few high power transistors as possible – realised by photo-etching single wafers of silicon for each batch of the N-type (NA009CN) and P-type (NA009CP) devices. This precise device matching ensures that current-sharing, among other characteristics, is utterly predictable across the full performance bandwidth. This has allowed Naim to engineer as elegant an amplifier circuit as possible with just four bridged output stages in parallel (that's 16 transistors in total per channel). The final production version of these devices have an alternative, non-ferrous case to that shown – the internals are unchanged, bonded onto a copper heat-spreader before being protected by a non-resonant epoxy shell. Even the legs are now solid copper to reduce electromagnetic interaction under high current conditions! PM



PRE/POWER AMPLIFIER

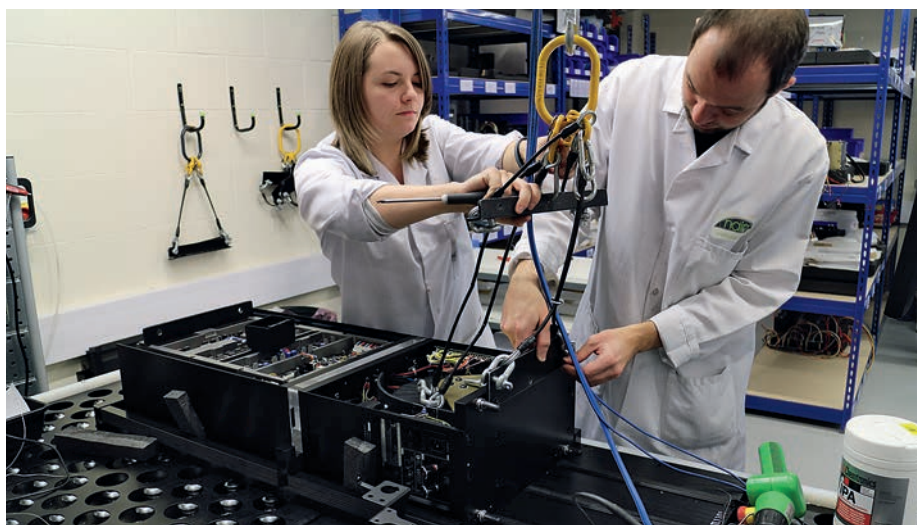
PAUL STEPHENSON

Ask Naim's CEO how the Statement project is doing, and he says that 'orders have exceeded our expectations by about 50%, and we're well on target to meet our forecast of selling 100 complete sets, despite 2014 being a year of tough economic conditions.'

The Statement started shipping rather later than anticipated, not least due to the weight of the product: 'We had to install custom lifting equipment and new handling processes throughout Naim, while building a Statement production team with the right skill mix.'

Stephenson started with the company in 1981 as Sales Director and opened up much of its distribution in export markets, so he's well aware that shipping 385kg amplifiers around the world brings its own problems, as 'it's not a regular delivery to a hi-fi store! It usually needs three-plus people and, of course, a forklift truck helps. We had to design custom packaging so it will survive a drop or two when you are shipping around the world – the cost of that packaging, and shipping, makes your eyes water.'

He expects much of what the company has learnt in designing and making the Statement to trickle down, 'the challenge is utilising this knowledge and these techniques to make more affordable products.' However, he confirms that Naim has plans to add a source component to the Statement line 'sometime – but only when we can move performance ahead as much as we feel we have with the amplifier.'



ABOVE: At 70kg and 107kg (each), respectively, final assembly of the NAC S1 and NAP S1 amplifiers requires the use of a custom-built hoist **BELOW:** The NAP S1's 25kg, 4kVA mains transformer

design of the protection measures. Last but by no means least, heatsinking is provided by those hefty extruded ribbed side panels so much a part of the Statement look: for now, like the rest of the amplifier, they come in black, but if you're spending this money then Naim is more than willing to discuss custom finishes!

SHEER INTELLIGIBILITY

More than two decades of reviewing hi-fi equipment has left me somewhat blasé about what, for most people (myself included), will only ever be dream systems, so I was far from prepared for just what the Statement could do.

Jettisoning all the usual 'audiophile approved' music I decided to hit Naim's amp with everything I'd got, from vintage prog and 1970s glam to orchestral warhorses and the most delicate of chamber music, and with every track I played a sense of regret grew inside me.

You see, I really needed to be sharing the listening with someone to whom I could turn and say 'Did you hear what it did with that?' before the two of us dissolved into ridiculous grins and giggles.

Realising that my usual PMC speakers might be ever so slightly outclassed by the Statement (!), I used a pair of Neat's Ultimatum XL10 floorstanders, as I'd heard them used in anger on a couple of occasions and really liked what they can do, while the


source was the Naim NDS network music player, with two 555PS power supplies.

Factor in cabling and a cup of tea for the team required to heft the whole system into position and you'd just have change from £200k. Worth the money? If I had that kind of cash at my disposal, my special matt black credit card would be on the retailer's desk in the blink of an eye.

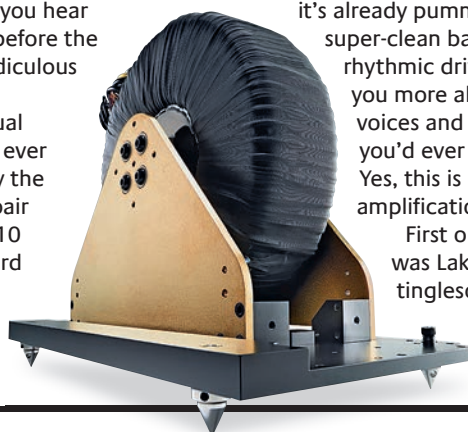
It's not all about bringing out detail you've never heard before/making the musicians appear like they're in the room/lifting veils – or any other hi-fi reviewing cliché you care to mention – but rather making every recording you play seem like you're hearing it for the very first time.

Most striking of all is the absolute linearity of the Statement, whatever volume level you choose, and whatever the music you play – from background levels, where it'll surprise you with the sheer intelligibility of the sound, right up to its ability to do the 'go on, you know you want to' thing. At which point it's already pummelling you with its super-clean bass and irresistible rhythmic drive, while still telling you more about instruments, voices and performances than you'd ever imagined possible. Yes, this is one truly superlative amplification system.

First out of the traps was Lake Street Dive's tinglesome cover of

'I Want You Back' from their *Fun Machine* EP 

'I decided to hit Naim's Statement amplifier with everything I'd got'



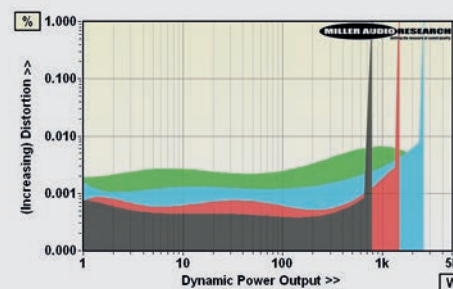
LAB REPORT

NAIM STATEMENT NAC/NAP S1

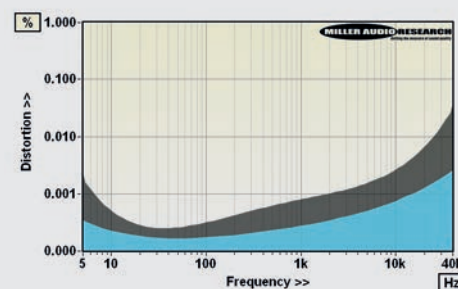
Designed to provide 6dB of headroom over the NAP 500 amplifier (4x the power output), Naim's NAP S1 is rated at 746W/8ohm (one horsepower) and 1450W/4ohm. This was met on test at 795W/1493W, respectively, although the massive PSU is so tightly regulated that there's effectively no dynamic headroom – 790W, 1480W and 2610W is possible into 8, 4 and 2ohm (10msec/1% THD) with 1585W/3190W available into 1ohm for 10msec/5msec. Maximum current is governed by the security of the output stage into any load – I was able to squeeze 4.05kW/6kHz/5msec so Naim's claim of 9kW/10kHz/0.1msec seems realistic.

Either way, the NAP S1 is clearly one of the most powerful and load-tolerant amplifiers ever tested in *HFN* [see Graph 1, below]. It's also one of the most linear, offering a mere 0.0002% THD through bass and midrange from 1-300W/8ohm, only rising to <0.0008% up to 700W/8ohm. At the highest frequencies this increases to just 0.0012%/20kHz and 0.0025%/40kHz courtesy of a response that stretches from 2Hz-50kHz (~1dB points) and to 100kHz at -3.3dB. The A-wtd S/N ratio is equally impressive at 94.8dB (re. 0dBW) and a huge 125.3dB (re. full output).

The partnering NAC S1 preamp is very nearly as linear with 0.0003-0.007% distortion [black trace, Graph 2], a wide 96.1dB S/N ratio (re. 0dBV) and a 14V balanced maximum output. Output impedance increases from 10ohm to 215ohm at 23Hz as a function of its AC-coupling cap just as Naim's regular series resistor bumps-up the NAP S1's impedance to 0.11ohm. Readers may view full QC Suite test reports for Naim's NAC S1 pre and NAP S1 power amp by navigating to www.hifinews.co.uk and clicking on the red 'download' button. **PM**



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green). Maximum current is 40A (10msec)



ABOVE: THD versus extended frequency; NAC S1 (1V out, black trace) and NAP S1 (10W/8ohm, blue trace)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	795W 1493W
Dynamic power (<1% THD, 8/4/2/1ohm)	790W 1480W 2610W 1585W
Output imp. (20Hz-20kHz, NAC/NAP)	215-10ohm 0.108-0.124ohm
Freq. resp. (20Hz-100kHz, NAC/NAP)	+0.0 to -13.8dB +0.0 to -3.25dB
Input sensitivity (for 0dBV/0dBW)	171mV 88mV (balanced)
A-wtd S/N ratio (for 0dBV/0dBW)	96.1dB (NAC S1) 94.8dB (NAP S1)
Distortion (20Hz-20kHz, 1V/10W)	0.0003-0.007%/0.0002-0.0012%
Power consumption (Idle/Rated o/p)	103W 1410W (NAC S1, 38W)
Dimensions (WHD, NAC/NAP S1)	270x940x412/256x940x383mm

LEFT: Eight stereo inputs are provided on the rear panel of the NAC S1 – six unbalanced ins (three on 5-pin DIN, three on RCA) and two balanced ins on XLR. Balanced outs connect to balanced ins on the two NAP S1 power amps, these equipped with single sets of 4mm speaker binding posts. RJ45 sockets provide for connection of the CAN (Controlled Area Network) bus

[Signature Sounds SIG2048], which I must have played hundreds of times. While I knew it was well recorded, I never knew just *how well* until I played it through this system. Simply, there's just much more of the entire performance, with every element fusing together to create great music-making, and everything revealed with crystalline clarity.

PINNED TO THE SEAT

Still not quite believing what I'd heard, I tried the Naim with ELP's 'Tocatta', the band's fabulously dense and percussive take on part of Ginastera's First Piano Concerto, from *Brain Salad Surgery* [Sanctuary Records 5308195]. It's challenging, to say the least, with its powerful drumming and percussion, swinging from gentle piano to thundering synth bass, with swirling programmed sounds and yes – even tubular bells. I was pinned to my seat, transported back to some vast arena around the time I was in Sixth Form, and loving every minute...

Another dozen or so tracks blurred by, each one seeming like a freshly-detailed shiny thing, and by now I was rising to the challenge of trying to wrongfoot the Naim. Wagnerian trumpets? Tinglesome, and delivered with total ease. Piano duets? Beautiful in the simplicity with which the amps bring out the performances intertwining, while recreating the sense of two big, metal-framed wooden stringed instruments in a closely-defined studio space. Accompanied voices?

The violin plaintively winding its way around the voice in Bach's *St Matthew Passion* aria 'Erbarme Dich' [Linn CKD 313], while the orchestra maintains the work's signature heartbeat, was one of those experiences that made you just sit in silence when the music stopped.

And then I played T Rex. Nothing I'd heard so far had prepared me for the way the signature riff of 'Get It On' [*Electric Warrior* – Universal 533 780-0] thundered out of the speakers, the definition of the percussion, the focus on Bolan's unmistakable voice, the piano stabbing in now and then, and that all-too-short guitar solo.

The song was given unstoppable motive power, and there was little left but to wonder at just how *well recorded* was what, for so long, had been seen as disposable pop. ☺

HI-FI NEWS VERDICT

OK, so there was some ribaldry when the Statement name was first announced, but the NAC S1/NAP S1 lives up to the title with a sound that's much more than the Naim signature writ large: this is a truly magical amplifier across a huge range of musical styles and listening preferences. It deploys its power in a manner that's not about showiness or bluster, but all about bringing the listener the closer to what's being played.

Sound Quality: 90%

0 - - - - - 100