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## A NEW NAIM

In-depth test  
of the Classic  
300 series

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Latest G2.2  
streamer/DAC

Living Voice  
R80 floorstander  
with elliptical  
driver technology



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**AUDIO FILE**

# Naim Audio NSS 333/ NAC 332/NAP 350

The second phase of Naim's 'New Classics' launch brings a new streamer, a preamp and monoblock power amps, all in redesigned slender casework. Are they true 'classics'?  
Review: **Andrew Everard & Paul Miller** Lab: **Paul Miller**

At times of late, it seems Salisbury's Naim Audio is wilfully courting controversy. It's been causing ripples with the brand's faithful fans ever since it launched its all-in-one Mu-so systems and second-generation Uniti products. It wasn't that these arrivals were on a mission to make hi-fi simpler for all, eschewing the tweakery and 'black magic' once suggested as a prerequisite for realising its true potential – no, what broke the usually calm surface was the fact the Naim logo, for decades lit in green, had turned white. Cue Naim aficionados fanning themselves like Edwardian *grandes dames* with a fit of the vapours.

Now the 'New Classics' products have taken a very substantial boulder and hurled it into the millpond, for not only are the logos white, there's a new take on the company's solid alloy casework, with a large notch through the upper surface and – the horror – Naim has embraced balanced XLR connections. That's apparent in the latest 300 series models, launched at this year's Munich High End Show – there's

the NSS 333 network player/DAC and NAC 332 preamplifier, at £7933 apiece, and the NAP 350 monoblock power amplifier, yours for £12,340 per stereo pair.

**STREAM ON TAP**

The arrival of the 300 series was signposted when Naim launched its first 'New Classics' – the NSC 222 streaming preamp and latest-generation NAP 250 power amp – at the beginning of 2023, priced at £5700 apiece. With them came the NPX 300 outboard power supply, Naim hinting it would offer similar potential for forthcoming models. Now those models are here, and that power supply can be added to either the NSS 333 or the NAC 332 to enhance their performance, with separate Burndy cables for digital and analogue sections.

The NSS 333 is based on the same 'platform for the future' Naim developed for its second-generation Uniti models

[HFN Nov '17], and which now sits at the heart of all the company's network audio products. Built from the start to be software-upgradable to take account of changes in the streaming landscape, the NP800 board offers both local and online streaming, including UPnP streaming from a NAS or similar storage, plus support for services including Spotify Connect, Apple Music, Tidal/Tidal Connect and Qobuz. It also has integrated AirPlay2, Chromecast and Bluetooth AptX for wireless streaming from smartphones, tablets and the like, and is Roon-ready.

**'Naim has embraced balanced XLR connections!'**

Digital-to-analogue conversion is provided by Naim's favoured PCM1791A DAC from TI/Burr Brown but running with a custom 44.1kHz/48kHz-synchronous digital filter [see PM's Lab Report, p45]. As well as wired and wireless network connections, the latter using twin antennae hidden away behind the player's heatsinking, the NSS 333 also offers two optical and two coaxial digital inputs. There are also two USB-A connections – one front, one rear – to which external storage can be connected.

**DUAL REMOTES**

Depending on the input, the NSS 333 will accept files at up to 384kHz/32-bit and DSD128, and control is via either the RF Zigbee handset supplied, or the excellent Focal & Naim app [see boxout, p44]. The Zigbee system can also be programmed to link the NSS 333 and NAC 332 for one-handset control because, as standard, the two units come with slightly differing

**LEFT/RIGHT:** [From top] new slimline casework is shared by the NSS 333 streamer/DAC, the NAC 332 preamp and NAP 350 mono power amp(s). The NSS 333 is largely driven via its 5.5in colour touchscreen and app [see boxout, p44], the NAC 332 by input buttons, volume and remote



"There's more body here than many might associate with the 'Naim sound'"





remotes [p45 and 47]. There's also Naim's wired system automation connection between the network player and preamp, and indeed on to the power amps, to allow synchronised operation. This uses an optical hook-up in the New Classics products, avoiding the possibility of ground-loops and allowing secure control over long distances – think tens of metres – at sensible cost.

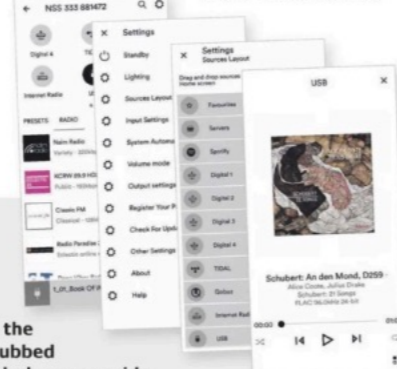
As well as a balanced XLR output, and RCAs, the NSS 333 also has a DIN output for Naim traditionalists, the preferred option chosen via the player's configuration menu. DIN inputs are also provided on the NAC 332 preamp. In fact, there are three, including one able to supply 18V power to external phono

**NAIM/FOCAL APP**

They're a fanatical bunch, Naim enthusiasts, and they got riled – yes, again – when the highly-developed Naim app for Android and iOS was updated with selected products from the company's French stablemate. Now dubbed the Focal & Naim app, and opening splash screen aside, nothing much has changed [see screenshots]. Once in 'Naim mode' the app offers configuration and control of the company's Uniti, Mu-so and ND-/NS- network products, also bringing several of them together to form a complete multiroom system with extended control (including global or individual volume adjustment). In this guise, it offers complete synchronisation between all the connected devices, so you can walk from room to room without missing anything. The app also reflects the range of inputs on the device(s) being controlled and notifies the user when updates are available for app or hardware. Facilities include a range of colour themes for the app, and the choice of slider or buttons for volume control.

stages such as the NVC TT, along with three sets of RCA inputs and two pairs of XLRs. However, the output here is on RCAs and XLRs alone, along with a front-panel headphone socket.

Control and audio circuits are kept separate using galvanic isolation, and input switching is via reed relays, with programmable input sensitivity, AV bypass mode and mapping of inputs to the sockets – so you could have any



**ABOVE:** Bumpy sockets support external PSUs for the NSS 333 [top] and NAC 332 preamp [middle]. The '333 has 2x coax, 2x opt, USB-A and network digital inputs (up to 384kHz/32-bit and DSD128) with DIN, RCA and balanced XLR outs feeding equivalent ins on the '332. Three pairs of RCAs/two pairs of XLR outs are offered while the NAP 350 [bottom] has one balanced XLR in and one inset pair of 4mm speaker cable sockets

of the six inputs on RCA, XLR or DIN. The NAC 332's volume control also uses reed relays and fixed resistors for superior sound quality, all governed by an optical encoder and the kind of smooth-acting oversized illuminated rotary control also found on Naim's Statement [HFN Jun '15], Uniti [HFN Aug '21] and Mu-so units. Finally, like the network player, the preamp uses two power supplies [see inside pics, p45 and 47] – a linear PSU feeds the unit when operational, giving way to a small switchmode PSU when in standby.

**NEW MONO ERA**

The NAP 350 power amp marks a return to mono amplification in Naim's mainstream, recalling the NAP 135 of yore. With its rated 175W/8ohm claimed to almost double into 4ohm [see PM's Lab Report, p49], the new amps are a step up from the (also) new NAP 250's 100W stereo output. In practice, the NAP 350 slots in below the 'old' NAP 500 DR [HFN May '16], which at £26,000 actually offers less power than a pair of NAP 350s at 140W/8ohm. The big stereo power amp, some 13 years on from launch and eight since its last upgrade, might now be living on borrowed time...



**ABOVE:** The NSS 333's large toroidal transformer [bottom right] feeds 4x PSUs for the NP800 streaming card [top right], ARM CPU [top right, centre PCB], DAC and SHARC DSP [top right, lower PCB] and Class A preamp stage [top left]

Anyway, the NAP 350 has only a balanced XLR input, so a 'legacy adapter lead' would be needed to use it with anything other than a balanced preamp. Naim having a range of such cables available. Its speaker outputs are only on a pair of 4mm sockets, for which Naim supplies a two-pin solderable speaker plug in the box.

Discrete Regulator (DR) power supplies are used, with a soft-start sequence for the toroidal transformers to stop them tripping domestic circuit-breakers, and the amp uses eight custom-design NA009 power transistors across its power supply and output stages, as originally



**LEFT:** Illuminated keys on Naim's RF 'Zigbee' remote allow full access to its menu and features, even in low-light conditions

developed for the Statement project. As in other Naim implementations of these devices, they're mounted to the heatsinking using ceramic insulators. A new heatsink design and fan keeps the amp cool when working hard, and niceties of the construction include through-hole components in the

**NAIM... NUANCED**

Reviewed as a system, the four Naim boxes answer several questions in very short order. Yes, the NSS 333 network player more than justifies its place in the range with a big, fast and exceptionally involving

*'It positively crashes out The Who's "Baba O'Riley"'*

sound that puts it ahead of the NDX 2 [HFN Sep '18] – though fortunately some way off the ND555 [HFN Apr '19], which still sets the standard in this sector of the market. And while some may speak of Naim's latest amplification becoming rather warmer and more cultured than the 'classic' Naim sonic stereotype, what changes exist are subtle, and for the better – the clarity of the NAC 332 preamplifier more than complementing the power and poise of the new, partnering NAP 350 monoblocks.

Even used with the highly revealing B&W 801 D4 Signatures [HFN Sep '23] in PM's listening room, the Naim amplification shows it has not just the power to drive the speakers cleanly, but also more than enough grip to keep them under control and realise all that the NSS 333 can deliver, whether from network storage or online services.

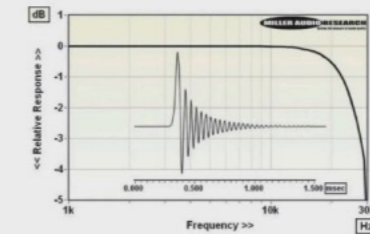
There's more body here than many might associate with the 'Naim sound' – though I have to say I have never found the company's amps, going right back to the early

**LAB REPORT**

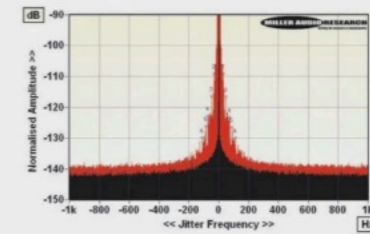
**NAIM NSS 333**

The NSS 333's response and time domain behaviour is entirely determined by Naim's custom 16x upsampling digital filter. This brickwall IIR filter is executed on a SHARC DSP and is combined with two series-connected 3rd-order analogue filters (6th-order roll-off) at the output. Specifically, Naim's minimum phase digital filter avoids acausal pre-ringing, but does exhibit extended post-ringing [see Graph 1, below]. The partnering Burr-Brown PCM1791A, a legacy 'Advanced Segment' DAC, operates up to 192kHz/24-bit and DSD64, but its response here does not exceed 30kHz with either 96kHz or 192kHz media. Instead, Naim's digital filter cuts in earlier, delivering a ~60th-order roll-off at -3dB/27kHz. With CD/48kHz media the response reaches -0.55dB/20kHz, the filter, gentle at this point, offering a 43.5dB stopband rejection (26kHz re. 22kHz at 48kHz sampling).

Maximum output is 2.1V from a 22ohm balanced source impedance (increasing to 286ohm/20Hz – see Lab Report p47) where the NSS 333 also furnishes a 106.3dB A-wtd S/N ratio and fine low-level linearity of ±0.2dB over the top 100dB of the streamer/DAC's dynamic range. Distortion is low at 0.0007% midband (falling to 0.0002% over the top 30dB of its range) and while there's some peak level 'stress' indicated at 20kHz/0dBfs where THD reaches 0.016%, it soon falls back to a minimum of 0.0008%. Moreover, HF distortion over 10kHz is mainly 2nd harmonic in nature as any (digital) 3rd-order products are attenuated by the 30kHz filter. Finally while Naim's digital RAM buffer has worked effectively on earlier products [HFN Apr '19], in this instance there was a marked difference in low-rate jitter between USB (10psec) and S/PDIF (33.45psec) inputs [see Graph 2]. Naim will be issuing a firmware update to remedy this. PM



**ABOVE:** Impulse (time) and frequency response with 96kHz/24-bit data revealing Naim's custom filter



**ABOVE:** High res. zoom jitter spectra with 48kHz/24-bit data (S/PDIF, red with mkr; USB-A, black)

**HI-FI NEWS SPECIFICATIONS**

Max. output level / Impedance (bal XLR)	2.1Vrms / 286-22ohm
A-wtd S/N ratio	106.3dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0007% / 0.0002%
Distortion & Noise (20kHz, 0dBfs/-30dBfs)	0.016% / 0.00075%
Freq. resp. (20Hz-20kHz/30kHz)	+0.0 to -0.55dB/-7.0dB
Digital jitter (S/PDIF / USB / Network)	33.45psec / 9psec / 10psec
Resolution (re. -100dBfs / -110dBfs)	±0.2dB / ±0.5dB
Power consumption	17W (16W standby)
Dimensions (WHD) / Weight	432x92x318mm / 11kg



## LAB REPORT

### NAIM NAC 332

With no RIAA phono stage or integrated DAC on board – Naim offers the NVC TT and NSS 333, respectively, to fulfil these roles – the NAC 332 remains a fully analogue, balanced line preamplifier with a dedicated headphone amp. Maximum gain is a generous +15.5dB, or x6 (balanced in/out) which yields a total system gain of +44.1dB with the NAP 350 in tow. This is very high when used with a modern, balanced line-level source like the NSS 333 [see Lab Report, p45] so the NAC 332 is best configured with an input trim of –10dB to optimise the ‘usable’ range of its volume control. The NAC 332’s maximum 9.6V output is more than sufficient to drive the NAP 350, with its 1.4V input sensitivity, into clipping. Nevertheless, even at high gain the NAC 332’s defining parameters – noise, distortion, response, etc – fall within, or are comparable to, the ‘envelope’ of the partnering NAP 350 [see Lab Report, p49].

Specifically, the NAC 332’s A-wtd S/N clocks-in at a very respectable 95.1dB (re. 0dBV) while the residual noise is a low –93.3dBV (22µV). The line frequency response is flat to –0.03dB/20Hz and –0.60dB/20kHz but rolls away to –15.9dB/100kHz and, more steeply, at low sub-bass frequencies to –3dB/2Hz [black trace, Graph 1]. The latter is also reflected in the (AC-coupled) output impedance trend which increases from a moderate 220hm (200Hz–100kHz) to 2300hm/25Hz [red trace, Graph 1]. Distortion, as anticipated, is very low at 0.00035–0.0019% (20Hz–20kHz, re. 0dBV), rising fractionally to just 0.0019%/40kHz [see Graph 2]. Channel balance is a very fine 0.02dB but there’s a hint of capacitive-coupling suggested in the stereo separation, falling from 90dB/1kHz to 63dB/20kHz. **PM**



**ABOVE:** The NAC 332’s toroidal transformer [bottom right] feeds 4x PSUs supporting the Class A input buffers [top left], balanced to single-ended preamp [centre], R-2R reed relay volume circuit [bottom left] and ARM microprocessor [bottom right]

’90s NAC 52/NAP 250, to sound overly bright, even though there’s no shortage of sheer boogie factor. What the new amps seem to do is make the sound just a little bit fuller and more substantial, without losing any of that pace and definition.

#### CLASSIC CONCERT

For example, with the recent *The Look Of Love Live* release to mark the 40th anniversary of ABC’s *The Lexicon Of Love* [Live Here Now; download], the Classic 300 system makes the most of this skillfully compiled concert version, complete with orchestra, to deliver a performance that’s both exciting and sonically rewarding. There’s a real spark and drive to the music, plus that abiding sense, a visceral presence, of being at a live event.

Compare and contrast with the latest Steven Wilson remasters of the original album [Neutron Records/UMC download; 96kHz/24-bit] and it’s clear the Naim network player and amplification can dig deep to unearth detail in the mix. Comparing back with an original CD copy of the album



**LEFT:** The NAC 332 has its own RF ‘Zigbee’ remote control for input, volume, etc, but can be sync’d with the NSS 333 for simplicity

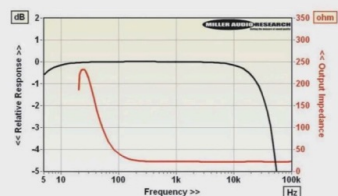
[Mercury 810 003-2] shows that it’s the new mastering working with the system to bring out much more of the excellent production here.

The same goes with the raucous rock of Alice Cooper’s ‘My Stars’ from the *School’s Out* album [Warner Records/Rhino R2 681029]. Bob Ezrin’s big, bold production all but conceals the instruments behind Cooper’s snarling vocal, but listen carefully and you soon appreciate the way the piano riffs and percussion are kept both audible and full of punch, driving the track along in the hands of the rich but fast Naim amplification. Clearly Ezrin is as much a part of the band here as Cooper himself: more than 50 years on, he’s still working the magic with the showman’s latest album, *Road* [Ear Music/Edel/Alive 0218744EMU], which sounds just as big and magnificent.

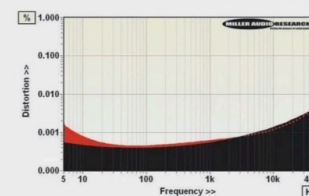
#### THE HIGH NOTES

That’s not to say Naim’s ‘New Classics’ can’t deliver lightness of touch and breathtaking imaging when required. With Handel’s aria ‘Rejoice Greatly’, from the Bach Aria Soloists’ *Le Dolce Sirene* [Reference Recordings FR-750], the system majors on the space and ambience around the voice, with a fluid, well-defined account of the accompanying ensemble. Yet it does all this with a total lack of effort, and no sense of stress or compression even when soprano Sarah Tannehill Anderson hits her highest notes.

That same mixture of fluidity, speed and crisp detail makes this system an excellent match for UK-based jazz ensemble Five Way Split’s



**ABOVE:** Balanced line freq. resp. (black, 5Hz–100kHz) and output impedance (red, 20Hz–100kHz) at 0dBV

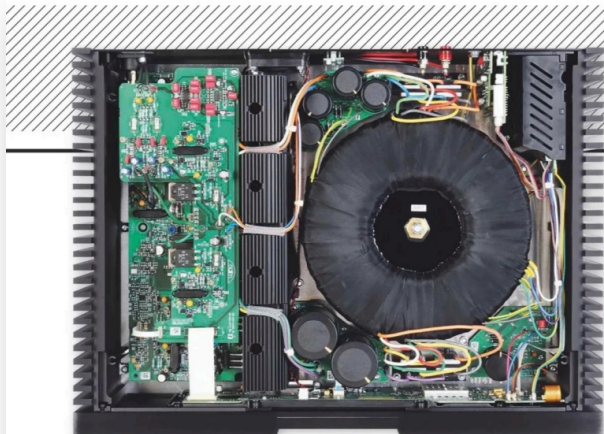


**ABOVE:** Distortion versus extended frequency at 0dBV (Balanced in/out; left, black; right channel, red)

#### HI-FI NEWS SPECIFICATIONS

Maximum output (<1% THD, 47kohm)	9.6Vms (Balanced)
Maximum input level (<1% THD)	9.8Vms (Balanced)
Output impedance (20Hz–20kHz)	230–220hm (Balanced)
Freq. response (20Hz–20kHz/100kHz)	–0.03dB to –0.60dB / –15.9dB
Input sensitivity (re. 0dBV)	170mV (Balanced)
A-wtd S/N ratio (re. 0dBV)	95.1dB
Distortion (20Hz–20kHz re. 0dBV)	0.00035–0.0019%
Power consumption	19W (1W standby)
Dimensions (WHD) / Weight (total)	432x92x318mm / 11kg





**ABOVE:** Massive toroidal transformer and reservoir caps for input/voltage stages [top] and output stage [bottom] feed Naim's proprietary DR (Discrete Regulation) PSU [left]. Two pairs of its custom NA009 power transistors are used in the PSU and two pairs in the audio power amp [on fan-assisted heat tunnel, centre left]

'Asymphonic', from *All The Way* [Bandcamp download]. The sound is wide open and three-dimensional, again with no restraint on the top notes of the brass. The trumpet of Quentin Collins is delivered with a real rasp and blare when required.

Not everyone would immediately associate Naim amplification with classical music, the company's demonstrations sometimes seeming to favour rock music or 'tumbleweed on the prairie' alt-country tracks, but the NSS 333/NAC 332/NAP 350 system shows it has all-round ability with the likes of the Minnesota Orchestra/Eiji Oue recording of Rachmaninoff's *Symphonic Dances* [Reference Recordings RR-96].

Here, the *andante con moto* waltz reveals the presence of the large orchestral forces even in the muted opening. But then the sound just keeps getting bigger and louder as the piece progresses – there's that fine light touch on the solo instruments, and then a great surge, again with a feeling of power being held back before being unleashed.

#### SWEEP AND SWAGGER

Similarly, with the dramatic Hallé/Elder recording of Holst's *The Planets* [Hyperion CDA67270], this Naim quartet delivers a real explosion of power on 'Jupiter'. There's 'hell for leather' speed and rhythmic acuity, plus fine insight into the percussion, along with the ability to conjure up the big stately chords and light and shade of the orchestra. The sweep of what would later become 'Thaxted', the tune for 'I Vow To Thee My Country', kicks in with thrilling

weight, and then the amps unleash thunderous brass in the final section.

Finishing the listening back in what many would consider the system's comfort zone, but with a similar balance of detail and attack to the Holst, it crashes out The Who's 'Baba O'Riley', in the SACD release of *Who's Next* [Polydor UIGY-9596], with magnificent swagger. Moon's powerhouse drumming is laser-locked with The Ox's growling bass, those arpeggiating keyboards underpinning Townshend's power chords and Daltrey's raw vocals to relentless effect.

Suggest that Naim Audio's New Classics have a more cultured sound than some earlier offerings and you won't get any argument from me. However, even more impressive is that this has been achieved at no cost to the company's musical tingle-factor, which thankfully remains entirely intact. ☺

#### HI-FI NEWS VERDICT

The 300 series from Naim's New Classics range fully lives up to its promise – its presentation combining a shade more warmth and culture when required with the ability to let go and power out the music when let off the leash. From the closely-detailed NSS 333 streamer/DAC to the effortlessly punchy NAC 332/NAP 350 amplification, this is the 'Naim sound' with broadened appeal, albeit never quite tamed!

Sound Quality: 88%

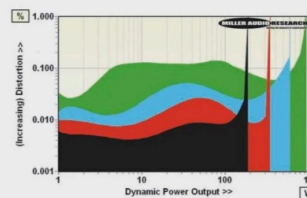


## LAB REPORT

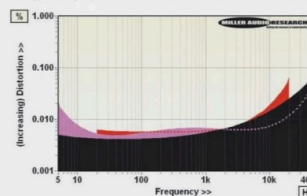
### NAIM NAP 350

Naim's high-end Statement-inspired output devices – the N-type (NA009N) and P-type (NA009P) power transistors – are used both in the NAP 350's audio power amp and power supply, as they are in the older NAP 500 DR [HFN May '16]. Naim's fully discrete PSU regulation is also retained – it's effectively a low-noise DC amplifier where the DC reference (a vanishingly quiet sub-surface zener diode) is bootstrapped to the output of the PSU, reducing both the residual noise and the source impedance of the supply. The result is a very tightly regulated PSU that supports a full 192W/80ohm and 361W/40ohm but offers no dynamic headroom – the NAP 350's power output is all but identical under both continuous and transient conditions yielding 189W, 349W, 599W and 948W into 8, 4, 2 and 1ohm loads [re. 1kHz/10msec < 1% THD; see Graph 1 below].

In this, and many other respects, the NAP 350 mirrors the NPA 500 DR although the more affordable newcomer is markedly more powerful (192W vs. 144W) and more load-tolerant (30.8A vs. 18.7A into 1ohm). Again, the low-noise DR supply is beneficially reflected in the wide 92.2dB A-wtd S/N ratio of the amp (re. OdBW) just as Naim's output series resistor holds the amp's source impedance at a moderate 0.20-0.26ohm. So while the default 80hm response is –0.2dB/20kHz to –3.2dB/100kHz (almost identical to the NAP 500 DR) some slight variation may still occur into variable speaker load impedances. Distortion is a steady 0.004-0.01% through the midrange over the rated 175W bandwidth and increases gently at high frequencies to 0.025%/20kHz at 1W and 0.06%/20kHz at 100W, but is lowest at 10W, falling to 0.01%/20kHz [see Graph 2]. PM



**ABOVE:** Dynamic power output versus distortion into 80hm (black trace), 40hm (red), 20hm (blue) and 10hm (green) speaker loads. Max. current is 30.8A



**ABOVE:** Distortion versus frequency versus power output (1W/80hm, black; 10W, pink; 100W, red)

#### HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	192W / 361W
Dynamic power (<1% THD, 8/4/2/1ohm)	189W / 349W / 599W / 948W
Output imp. (20Hz–20kHz/100kHz)	0.204-0.210ohm / 0.256ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.0dB to –0.23dB/–3.2dB
Input sensitivity (for OdBW/175W)	107mV / 1412mV
A-wtd S/N ratio (re. OdBW/175W)	92.2dB / 114.6dB
Distortion (20Hz–20kHz, 10W/80hm)	0.0049-0.012%
Power consumption (idle/Rated o/p)	18W / 353W (1W standby)
Dimensions (WHD) / Weight (total)	432x91.5x318mm / 16.5kg

