

Naim ND555

MARTIN COLLOMS TRIES OUT NAIM'S NEW TOP-OF-THE-LINE STREAMER/DAC, ALONGSIDE COLLEAGUES ANDREW EVERARD AND JON HONEYBALL



Martin Colloms Writes:

Naim Audio's *ND555* is the company's latest streamer-DAC flagship, and has had a major impact on my audio system. The Naim heritage is founded on a level of music replay which combines expressive dynamics and fine timing together with strong listener attention, though its priorities have been more about rock music involvement and less about sound quality aesthetics.

Most Naim designs mature gradually during the months after purchase, which is a tad frustrating, but the sound quality eventually becomes more satisfying than found originally. Our review sample had a month or two of heavy use, but could well improve a little more with time.

Technology

The *ND555* is the first streamer/player to join the top-of-the-line *500-series*, distinguished from the competition by ranking exhaustive sound quality design above features. Common to the *ND-series* is a new, low noise, high sample rate streaming board, though the DAC uses the established and legendary (now discontinued) Burr Brown *PCM 1704U-K* (a multi-bit ladder-type of which Naim holds considerable stocks). While normally limited to 4x oversampling for a 96kHz rate, Naim explains that the DAC section will actually operate at up to 768kHz, and while it doesn't handle the few still higher bitstream rates, it will do DSD up to 128x and PCM multi-bit data up to 384kHz sampling.

For the digital processing and filtering 16x oversampling and digital filtering has been chosen for higher accuracy and lower noise. This processing task is allocated to the SHARC

ADSP21489, a low noise, low voltage powerful computing facility, located in the screened and separately powered *NP800* 'digital' half of the streamer. Here advanced streaming and radio connectivity sections are also located, while jitter reduction and other processing information is interconnected *via* low noise digital data interfaces. Here the format is 'low voltage differential', this a balanced data connection mode suppressing ground mode interference, this technology augmented by a separated clock line to reduce noise.

Moreover the master clock is optimally located at the DAC for improved synchronicity. Accordingly, all the other stages are locked to this master, minimising jitter at the point of decoding the audio signal. In addition the input buffer data store has been greatly expanded, to carry entire music tracks, comprehensively addressing jitter and streaming dropouts.

By this means the largely analogue, left hand side of the *ND555* has minimised interference levels, which should contribute to increased transparency. Naim's own style of discrete analogue low pass filter has been retained, as no better has been found. Here it's augmented to further reduce in-band phase shift, while the DACs have screening cans to improve local radio frequency noise suppression. Current-to-voltage conversion, a critical sound quality stage, is allocated to a discrete component feedback amplifier of high dynamic range and audiophile build quality, including custom capacitors.

Built like a costly turntable, the vibration sensitive audio and DAC circuitry is separately screened in its own half of the unit, floating on a leaf spring suspended vibration isolation system based on a heavy (2.6kg) brass block. This feature is said to maximise

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transparency, detail and dynamics in the reproduction. Numerous 'DR' Naim designed low noise regulators abound throughout the unit (13 in toto).

Sound Quality

The *ND555* soundstage has an inviting transparency, with subtle natural timbres, fine image perspectives and truly excellent focus. We initially suspected that it might be just too seductive, if such is possible. Certainly it required no thought at all to recognise superbly deep soundstages, massive stage width, and first class three dimensional stereo imaging. Texture was virtually devoid of unwanted grain; sweet yet sparkling; highly detailed yet also convincingly micro-dynamic. Subtle gradations of musical expression were portrayed very well, it played with great authority, and in context possessed fully convincing naturalness.

It digs very deeply into complex recordings, yet with the very natural tonality that is associated with delicate *Statement* class treble. Whereas that amplifier shows high levels of shimmering seductive detail distributed over a huge soundstage, similarly expressive sounds, including highly communicative vocals, were heard from the *ND555*, which demonstrated great refinement and sheer class.

Dynamic and powerful sounding, streamer served material off the internet was rendered to a higher standard than hitherto thought possible. Tidal 'full cream' now sounded almost as good as high quality rendering of CD originals sourced from a local drive. The latter's original might be better still, but the quality gap between them is much reduced here, and both playback methods are rendered with substantially better fidelity than hitherto in my audio system.

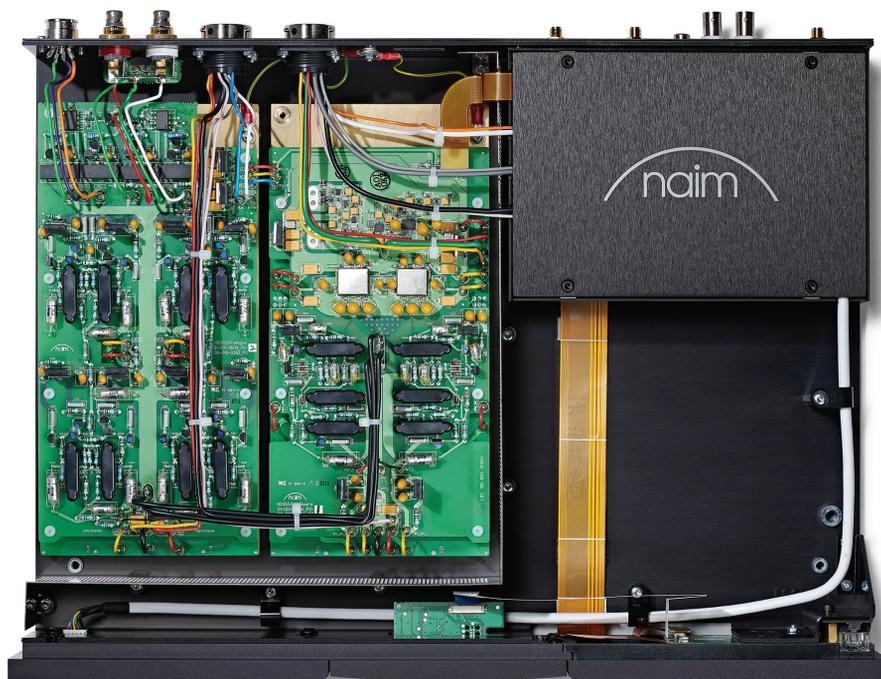
Devices such as the dCS *Network Bridge* have previously helped to narrow the gap between network streamed and local files, when used as an accessory to the *NDS*. That gap is even less with the on-board and highly effective data handling found in the new '555. In this case such a 'bridge' now appears to be redundant.

With the high state of tune of our well-run-in *NDS* for comparison, the *ND555* certainly attained an unsuspected high level of refinement for digital audio replay, after just a few weeks of service. By refinement, I include transparency, subjective dynamic range, image depth and focus, stage width, and these fundamentals are combined with grainless, almost analogue-like textures. Close the eyes and the listener is readily seduced by the hyper-detailed and informative soundscape.

Invoke the embedded volume control with the 'settings switch' and by using an appropriate App (such as Roon), and a very slight loss of quality

is audible but this is likely rather less than for any alternative discrete analogue controller if those extra insertion losses, including the cables, are taken into account. In this App controlled condition no pre-amplifier is required as the *ND555* becomes the sole controller/ provider of your music replay. (*But hands off irresponsible children!*)

After a considerable period of listening, awash with the musical beauty of it all, I was drawn back to the resident *NDS*, initially not warmed up and then again over a day or so, when fairly settled back in harness. And right away here was a conflict, for me and perhaps for some *HIFICRITIC* readers. In a direct contest, the *NDS* appeared to time just that bit better than the *ND555*, was more directly on the beat, but conversely sounded somewhat less open, less pure, and mildly less transparent. At this point we noticed that the signal grounding switch on the back panel of the *555* was set to the left (when viewed from the front) noting at this point that my system didn't have the otherwise grounded Naim Phono Superline amplifier connected. As such the correct setting for the *ND555* was for a 'to the right' position. Previously changes to this setting with other designs were helpful, but not transformational to sound quality but they most certainly were for the *555*, with still further improved scale, perspective, richness, micro detail, depth, weight, plus an unfamiliar and appealing psychoacoustic impression that the soundstage was indeed properly 'grounded', while before, if only in reflection, it seemed to be mildly floating off the floor.



The *NDS* remains a very great player, with industry leading rhythm when fully set up, while the *ND555-555DR*, is similarly rhythmic, and offers superior and stunningly beautiful, highly informative stereo soundscapes of very natural tonality presented on a grand scale. (Sound quality ratings: *NDS* 300, *ND555* 400.)

Colloms Conclusions

I cannot recall a digital player of such build quality and performance where transparency and detail, image depth and stage width is so clearly state of the art, and one which is allied to a highly extended and natural subjective frequency response. It sounds absolutely wide open. The balance of these qualities is hugely music, system, and listener dependant, and here I feel that prospective purchasers will have to judge for themselves the relative importance of all these matters but in our reference system it is clearly state of the art. Our top Audio Excellence rating is well deserved.

Lab Results

We could not fit in a full lab test, but I did make a few checks. Output level was a little above (approximately +1dB) the nominal 2V for full modulation: 2.264V, identical for both channels. High frequency noise can be an issue, leading to variable results with different ancillary equipment here ultrasonic spurious were well suppressed (better than -94dB), while inter-channel phase agreed to within 0.02 degrees.

For a 24-bit input the total harmonic distortion was very low (-105dB or 0.0006%), and for 16-bit coding -99dB (0.001%). (These are typical 1kHz results.) The frequency response was very uniform, reading just 0.15dB down by 10Hz while falling a little to -0.5dB by 24kHz for 50kHz rate sampling; it was perfectly uniform in-between. Channel separation was 102dB at 20Hz and 1kHz, with a still quite excellent 81dB at 20kHz. Two-tone CCIF intermodulation distortion (19/20kHz) was an excellently low -91dB at full level. For a 1MHz measurement bandwidth, noise and distortion was also very good, at better than 84dB down on full level, and there was no hum related noise evident, to at least 120dB below full level. These are state of the art results.

Andrew Everard tries the ND555

When Naim introduced its ‘platform for the future’ with the current generation of *Uniti* products, it was always pretty clear what at least one part of that future would be – and in the new *ND*- network players the potential of the software/hardware package has been fully realised.

Like the junior *ND5 XS 2* and *NDX2* – the latter reviewed in *Vol12 No3* – the *ND555* has much wider-ranging compatibility than the first generation *ND* models, now including 384kHz PCM and ‘double DSD’ at 5.6MHz. That should please those of us who until now have been down-sampling and down-converting such formats in order to squeeze them through players like the *NDS*!

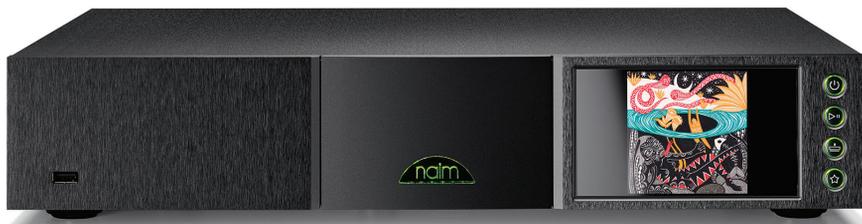
More to the point for most users will be the ability of the *ND555* to handle a wide range of music services, plus the bonus of ‘Chromecast built-in’ to allow future-proofing – basically, any App or service with Chromecast compatibility can be played through the flagship machine – in addition to Bluetooth aptX HD and Apple AirPlay 2 wireless connectivity.

While those wireless services may well be of little interest to the serious audio enthusiast – and indeed, in listening I found installing the Bluetooth antenna supplied with the *ND555*, not to mention the two Wi-Fi aerials, had a detrimental effect on the sound – more useful will be the wired Spotify, Tidal and Internet radio integration carried over from the old series, plus the new addition of Roon-Ready capability.

I’ll come back to Roon in an update overview in the next issue of *HIFICRITIC*, but for now it’s sufficient to say that this comprehensive music indexing and playback software first intrigues, and the rapidly becomes compelling. Its inclusion is a major plus-point for the *ND555* and its siblings – not least because it also allows access to the Qobuz *Sublime+* hi-res streaming service.

Beyond its onboard capability, the *ND555* also has a familiar array of digital inputs – two optical on Toslink connectors, and co-axial electrical on RCA/phono and BNC. The optical inputs are, as usual, limited to 96kHz/24-bit, while the electrical ones extend to 192kHz and also allow DSD64 to be received using DoP. The player also has two USB inputs – one front, one back – to allow storage devices to be connected for music playback, and the content on these can be exposed to other UPnP devices on the network, such as other Naim *ND*- or *Uniti* players, by using the *ND555* in ‘server mode’.

Outputs are on the usual Naim choice of RCA/phonos or DIN, with the option to have either or



both enabled (stick to just the one you're using) and the *ND555* can be used with either one or two external Naim power supplies.

Well, just to clarify, in common with the *NDS* the new model must be used with at least one power supply. From the *555 PS DR* power supply a pair of Naim's hefty multicore Burndy leads provide separate feeds for the digital and analogue sections, and of course you also have the option of using the *ND555* with two *555 PS DRs*, meaning one would be dedicated to each part of the player.

I am yet to experience the 'twin power' configuration, but mixed messages about the worth of the three-box set-up suggest that two boxes will do very nicely indeed. A further twist to the 'tuning' of the *ND555* (and the two other new-series *ND*-models) is even more intriguing. Given the wide capability of both the player and the Naim control App (and also following what is usually seen as good hi-fi practice), I initially went through the settings menu on the App turning off all the unused inputs and services – this de-clutters the screen, and one would have thought removes potential sources of interference. Not so, it seems – the word from those in the know at Naim is that the player sounds better with everything left on (even if no-one seems to have yet worked out why this should be the case).

So, with App screen freshly re-cluttered, I tried the suggested configuration, and have to admit I could hear no difference between it and the 'stripped back' one.

Although the *ND555* has a variable output level option, this is mainly present to satisfy the requirements of Apple AirPlay 2's multi-room capability: while it might be tempting to consider the player as a 'digital preamp/streamer', which could be run directly into a power amp, my experimentation would follow Naim's advice that this isn't an advisable course of action. Only when using AirPlay would I suggest the remote volume should be used.

Even using my well-used *NAC52/52PS/NAP250* combination (which still sounds very special despite being thirty years old), it was clear that the *ND555* sounded best when run at fixed level into a 'proper' preamp. Used 'direct' into the power amp *via* its internal volume control caused a noticeable coarsening of the sound and a marked diminution of the sense of space around instruments in atmospheric recordings.

Better by far, if you have a more recent Naim pre-amp, is to connect the little 3.5mm jack lead between the *ND555* and the preamp's input, and use the built-in system automation to let the player control the pre-amp's volume setting using the on-screen settings. That way you get the best of both worlds: the extra

definition of running the player at fixed level, and the convenience of remote volume control.

Sound Quality

So what of the sound of the *ND555*? Having spent time with both the *NDX2* and the *ND5 XS 2*, what's immediately clear is that the flagship player builds on the 'house sound' of the new *ND*-range by adding greater insight into the detail and ambience of a recording, and casting a more sharp-focused and extended soundstage. There's nothing overblown or false going on here, but rather a remarkably three-dimensional sonic picture that's even more detached from the speakers, and creates a greater impression of a performance in the room.

What's more, the transparency on offer here is as revealing of system tweaks as it is of what's being played: for those doubting that even the smallest change to a set-up can make a difference to the sound, especially adjustments in areas logic suggests shouldn't affect performance, the Naim will prove a revelation. A whole new 'black art' of hi-fi is likely to spring up around this player – I've already mentioned the inputs on/off thing, but that's only the start – with installers and users alike playing with network connections, cable dressing (for both signal and power), router and switch isolation and so on in the quest for that last smidge of performance.

For example, having recently installed a heavily-damped network switch to link my NAS and player, connected to the rest of my home network via fibre to avoid interference, I was fairly sure my efforts had brought a little extra resolution to the sound; with the *ND555* in harness, switching between the new switch and a cheap plastic model I had to hand showed an immediate loss in focus and the finer details of the music, and in particular the presence of performers in the soundstage. Meanwhile the feel of vibrating bass strings and shimmering metal in cymbals was also diminished, robbing the sound of a little of that impression of 'liveness' or reality. Somehow I feel there is more tuning to be had, as every conversation I have with those familiar with this remarkable player seems to start 'Have you tried...?'

But as a long-time *NDS* user, the £48,611.59 question (exchange rate correct at time of writing!) is an obvious one: does the *ND555* render my existing player obsolete? To which the answer must be that, while the new model does better the old when it comes to sheer detail resolution and imaging in particular, and with the solidity of its bass slam – as one might expect given that it's double the price before you add on the requisite power supply – the *NDS* sounds far from 'broken' by comparison.

The Colloms System

Constellation *Inspiration 1.0*, Townshend *Allegri+* control units; Naim *NAP500DR* power amplifier; Linn *LP12* vinyl player (plus *Keel*, *Radikal*), Naim *Aro*, Lyra *Delos*, Naim *Superline DR*; *UnitiServe* and *Core* servers (S/PDIF source); Naim *NDS* and *ND555* streamer-DAC, *555 PS(DR)*, Auralic *Aries G-2* streamer; Meridian *200* CD drive; Wilson Audio *Sabrina*, Sonus Faber *Sonetto VIII*, KEF *R5*, Magico *S-5II*, Quad *ESL63*, BBC *LS3/5a* speakers; Naim *FRAIM* audio racks; Transparent *XL MM2*, *Crystal Ultra Diamond*, and Naim *NAC A5* speaker cables, Naim *Super Lumina*, Transparent *MM2* and Van Den Hul *Carbon TFU* interconnects.

In fact, the NDS is still a hugely enjoyable player; it's just that the ND555 gives you more, in both sound and flexibility, not least of which is the Roon-ready integration, currently achieved in my system using a Mac mini via a Mutec MC-3+ Smart Clock USB (to convert from USB to S/PDIF) into one of the NDS's digital inputs.

It's slightly clunky, and not ideal in terms of box-count – but I'm working on ways around that, and hope to report back in the next issue...

Jon Honeyball's Opinion

Without doubt, the ND555 is a significant step up from the NDS, which places it in the top handful of streaming/DAC units on the world market regardless of cost. Some might prefer dCS, others Chord, some will reach for the more esoteric offerings from USA and Europe, but Naim has rightly held this respected position since the launch of the NDS, and the ND555 lifts that performance substantially. As is usual at this elevated performance level, it's not what it does; it is what it doesn't do. There is less fog, less incoherence, and improved timing. From any objective viewpoint, it's a win on every front.

There are some downsides though. Value is one of them. NDS, as a secondhand proposition, now makes a compelling choice. Another is the reliance on the Naim App for operational support under IOS and Android. I consider that both have significant usability issues, and Naim currently seems to have a lethargic 'fingers-in-ears' approach to fixing them.

Then there is the Roon question. If you are to skirt around issues with the Naim software by using Roon, then the system is no longer clean and simple, but complicated by the necessary Roon server and endpoint support. And although ND555 has an embedded variable volume control in the software, in theory it is only there for AirPlay certification. And I doubt I would risk employing such a facility for controlling my expensive amps and speakers from screeching overload.

In my opinion the ND555 sounds better than the long established and matching NAC552 pre-amp, while I suspect that the majority of ND555's will be used in a 552-based Naim system. I think that this will limit system performance, and bring into some question the value of an upgrade from NDS to ND555.

Regardless of this reservation, those with all-Naim systems will find the desire to have the best will be overwhelming. For those prepared to put the ND555 into a still more highly tuned system, there is a truly world class streamer DAC to be enjoyed.

ND555 Specifications

Hi-res streaming	Up to 32-bit/384kHz as standard
Network Connectivity	Ethernet (10/100 Mbps), Wi-Fi (802.11 b/g/n/ac), dual rear aerials
Internet Radio	vTuner (No AM, FM or DAB)
iPod/MP3/USB	USB – yes (No iPod direct)
Online Updates	Yes (computer loading not required)
Display	5", 12.5cm colour TFT liquid crystal
Storage	USB drive inputs: 1 x front, 1 x rear
Bluetooth?	aptX HD
Upgrades?	A second PS555DR power supply
Controls	RF Zigbee remote control, front buttons, App
Ethernet	RJ45 connection
USB power	type A front and 1x rear (1.6A)
Wired Remote	1x 3.5mm output RC5 (for legacy products)
Digital Audio Proc.	SHARC ADSP21849 DSP
DAC	PCM1704U-K Burr Brown multi-bit DAC
Volume Control	Yes (digital volume control)
Digital Inputs	2x TOSLink, 1x coax RCA, 1x coax BNC
Digital Output	1x BNC S/PDIF
Analogue Outputs	1x 5-pin DIN, 1x RCA (switchable)
Streaming on line	AirPlay, TIDAL, Chromecast built-in, Spotify Connect UPnP™(hi-res), Roon Ready
UPnP Server	Yes, for local USB content
Gapless Playback	Yes
UPnP Client	Yes
System Automation	RF & IR out
Power Supply	1x PS555DR required (2x option)
Weight	14 kg
Size (WxHxD)	432x87x314mm
Price	£12,999 (+ £6,999 for PS555DR supply)

