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Naim Audio ND 555/555PS DR

The new flagship player network player from Naim ups the ante – not to mention the price – from the company's previous range. Is the performance elevated, too?

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

The ND 555, sitting at the top of Naim's latest three-strong network player/streamer/call-it-what-you-will range at £12,999, isn't a direct replacement for the 'old' NDS. Yes, that player is now discontinued, but note I said the ND 555 isn't a 'direct' replacement – after all, the new model is more than twice the price of its forebear...

You'll also need to invest a further £6599 in Naim's 555PS DR power supply, which connects to the player with twin Burndy cables to power the digital and analogue sections. As with the NDS, the new model has no onboard power provision. So that brings us up to just under £19,600 for the unit we have here, and if you wanted to take things to the extreme you could add a second power supply, bringing your bill to over £26,000.

FUTURE-PROOF PLATFORM

For all that, the ND 555 simply looks like an NDX 2 [*HFN* Sep '18] built on a grand scale. The most obvious difference from the old NDS is the replacement of that unit's functional but slightly archaic green on black display with a full-colour screen. That display hints at some of what's inside the unit. Like all current Naim ND series and Uniti models, the ND 555 is built around the company's much-vaunted 'platform for the future' (at the time of its debut in the reinvented Uniti range this was floated as a logical upgrade for the ND series).

The new NP800 platform [see picture, p39] is a complete software/hardware package that not only boasts enhanced performance, it also adds functionality, and makes it simpler for the company to add more when required. The headline points are that the ND 555, like the NDX 2 and ND5 XS 2 [*HFN* Jan '19], now supports PCM-based audio files of up to 384kHz/32-bit and DSD up to 128/5.6MHz. It's also

now Roon-ready to allow it to function as an endpoint in a system using that excellent library/playback package. And thanks to the inclusion of Chromecast audio, it's now compatible with a huge range of apps playing audio or video soundtracks, at up to 192kHz/24-bit. Digital inputs are also included, on Toslink, RCA and BNC connections [see rear shot, p41] and able to accept up to 192kHz/24-bit, and the player also has front and back USB-A ports, which can be used for playing content from memory devices.

Indeed, such is the scope of this new player that it seems Naim is guilty of only one significant omission: a manual. There's none in the box beyond a Quick Start Guide that's simple to the point of being vestigial, and a search of the Naim site reveals only the same guide available for download.

True, anyone buying the ND 555 is likely to have it installed by an authorised Naim retailer, who presumably will be well-placed to both optimise the set-up and

explain the functionality in detail, but Naim seems to have moved away from providing full manuals for its products. And if ever something deserved a comprehensive and informative manual for installation and operation, the ND 555 is it.

KING OF THE CAGE

The radio-connected remote control, meaning no 'line of sight' is required, is a more upmarket, metal-cased, version of the one supplied with the NDX 2, and of course is black with green illumination. You'll need to study that Quick Start Guide in order to get to grips with its iconography, and that of the front-panel buttons, so better by far is to stick to 'driving' the ND 555 with the Naim app, available for both iOS and Android phones and tablets.

The app is still being continually upgraded and with a little familiarisation it's pretty intuitive in use. It also adds levels of flexibility to the operation of the player that you won't realise with the remote



RIGHT: Naim's DAC board [centre] and analogue filter/output board [left] are both mounted on sprung-suspended brass plates while the two PCM1704 DAC chips are separately screened [silver cans, centre]



handset alone. For example, a terminal on the rear of the player can connect via cable to a suitable Naim amplifier, allowing the app to control its volume and muting, and also select preamp inputs if required. The ND 555 does also offer a choice of fixed or variable analogue outputs, on both Naim's customary DIN as well as a pair of RCA sockets, but the variable out is there only to satisfy the multiroom requirements of the Apple AirPlay implementation on offer here. Strictly, it's not a recommended way of connecting the player directly to a power amplifier.

The principles of the ND 555 are much the same as those of the NDS, in that the main circuitry is 'floated' on leaf springs, thus requiring four transit screws to be removed from below before the player is used, which is only a slightly tricky

'You'll encounter many "tweaks" on your journey with the ND 555'

exercise. However, in the new machine this isolation is ramped up with the use of two hefty brass plates carrying the main circuitboards, the 'SpringBoard' construction said to isolate them from all vibration above 10Hz. In addition, the streaming section is mounted in an improved version of the Faraday Cage that was first seen in the NDS. This is not only physically isolated from the rest of the player but is claimed to be 'radio opaque' up to a considerably higher frequency.

In streaming or UPnP mode, the NP800 platform is governed by Naim's 'ClockMaster' system, which is mounted close to the DAC chips to minimise jitter. The DACs are also mounted in their own Faraday cages and, to put it mildly, are

ABOVE: The ND 555 uses the same colour display seen in the NDX 2 and Uniti. Four buttons offer basic functions including play/pause and input selection, but it's best to use the Naim app

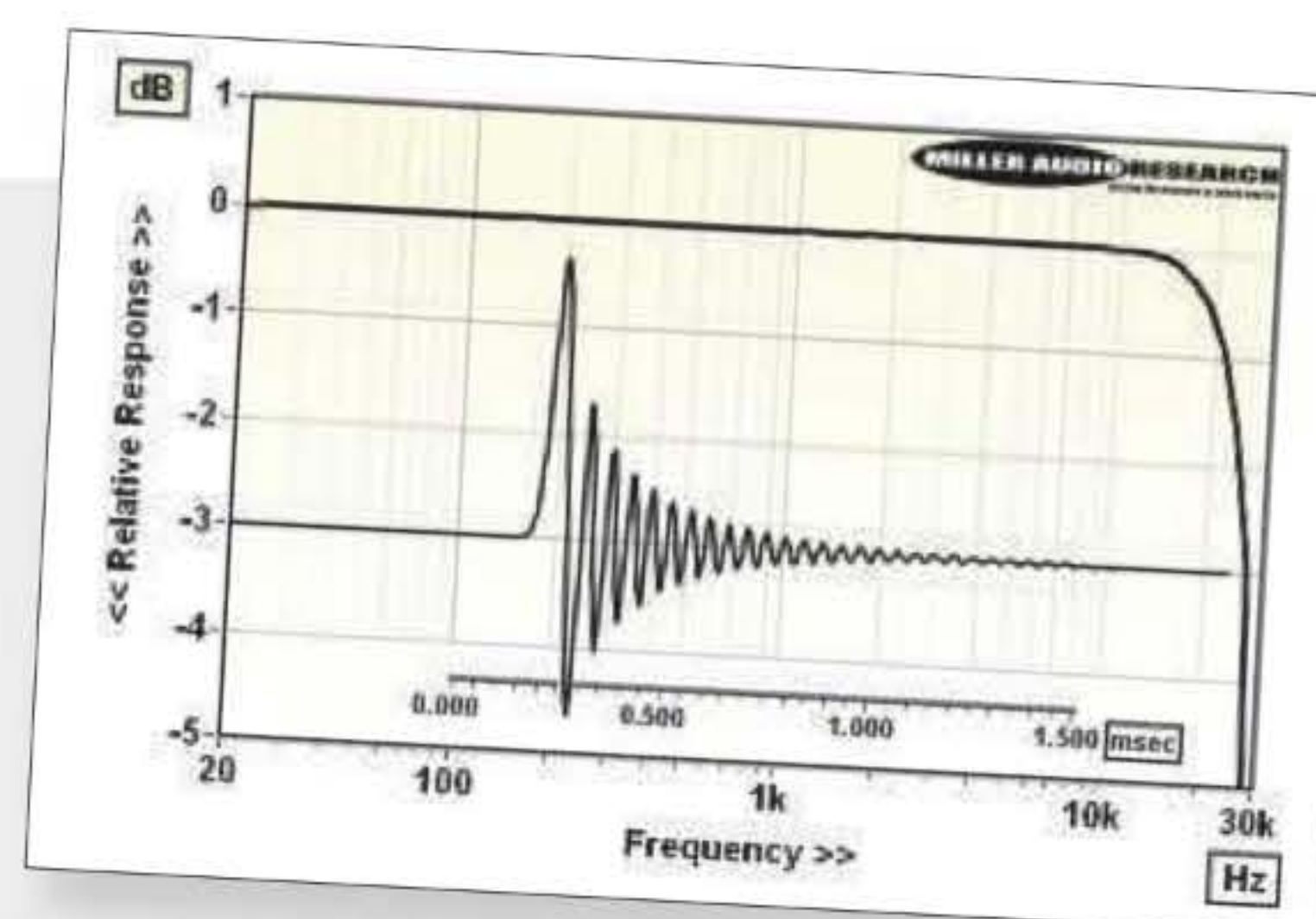
a tried-and-tested technology. Naim continues to use them, in a carefully selected form, simply because they are considered by the designers and engineers to be the best-sounding [see PM's boxout, below left, and Lab Report, p41].

Naim's attention to power supply design is no less legendary. Here, no fewer than 13 stages of Naim's DR (discrete regulation) PSU stages are employed between the ND 555 and 555PS DR, each located close to the section of the player being supplied, including separate regulation for the DACs, clocks and output stages. Furthermore, while the usual recommendation to connect the ND 555 to the network via Ethernet still holds, Naim has also improved the Wi-Fi performance of its new ND series to include 802.11b/g/n/ac capability and support for 2.4GHz and 5GHz speeds in order to give greater stability.

Also, a greatly expanded Wi-Fi buffer is now used to prevent drop-outs, the company saying it can now store an entire track's worth of data. Two rubber antennae are provided for Wi-Fi, and one for Bluetooth, mounting to screw terminals on the rear panel, but experience suggests they should be left in the box in a 'hard-wired' system.

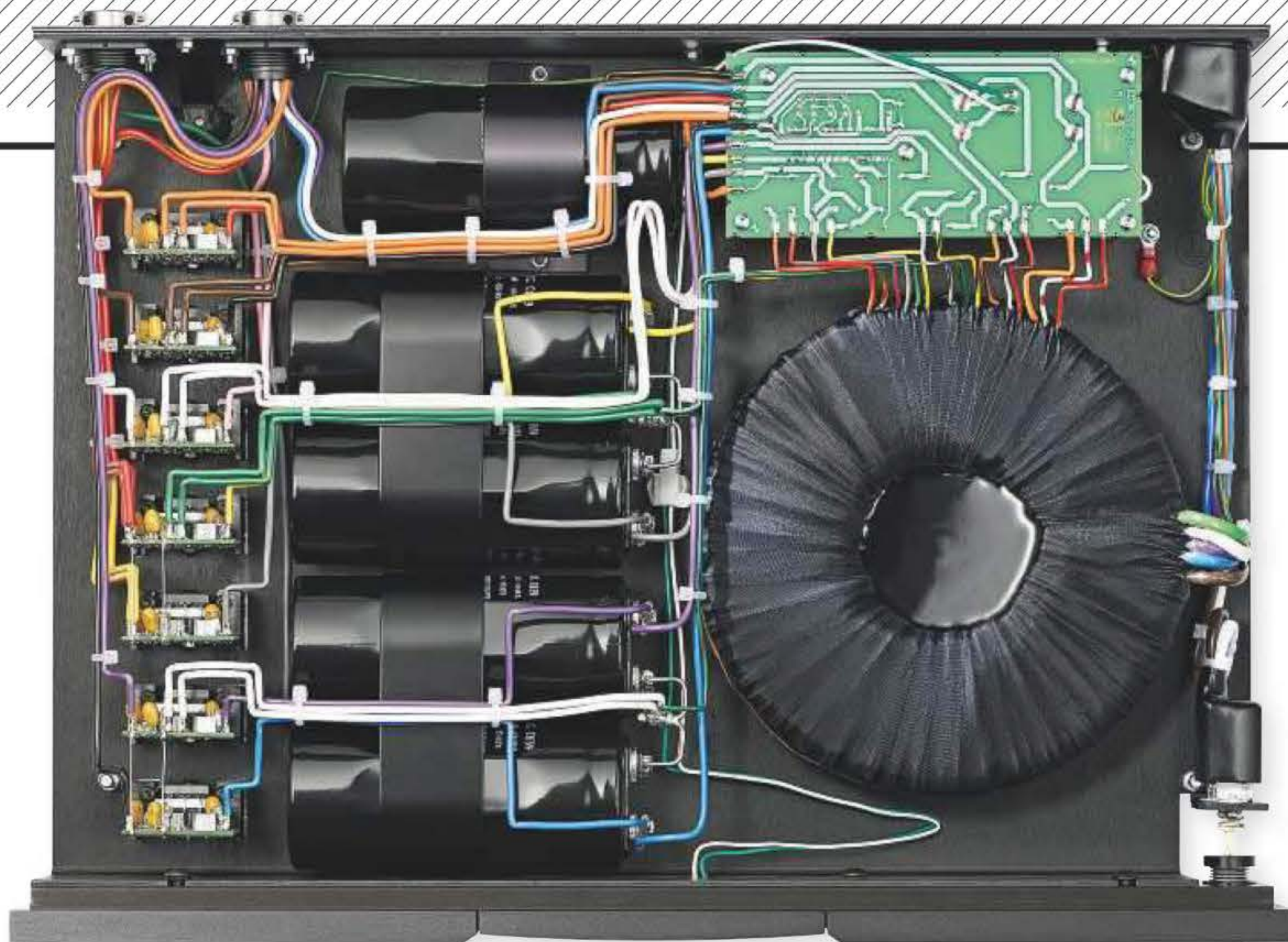
CUSTOM CODE

The response and time domain behaviour of the ND 555 is entirely determined by Naim's custom 16x upsampling digital filter. This brickwall IIR filter is executed on a 4th-gen SHARC DSP and is combined with two 3rd-order analogue filters (in series to yield a 6th-order roll-off) at the output. This digital filter type suffers no pre-ringing, but does exhibit extended post-ringing [see inset Graph] – akin to a pure analogue filter. All incoming sample rates are upsampled to one of two elevated base rates – 768kHz (for 48k/96k/192kHz media) and 705.6kHz (for 44.1k/88.2k/176.4kHz media and DSD64 files). The Burr-Brown PCM1704, a legacy 96kHz/24-bit 'ladder type' multibit DAC is used here in current output mode with discrete I-to-V conversion, but its response 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 [see Lab Report, p41]. PM.



THE BIG REVEAL

That's the kind of tweak you get used to when beginning your journey with the ND 555. This network player is so extremely revealing that just about everything you try seems to make some difference to the sound – although whether for the better or worse may well be a matter of personal



ABOVE: Discrete regulation [far left] distinguishes the latest 555PS outboard PSU – its huge toroidal transformer [right] and filter caps [centre] larger than those used in many substantial hi-fi amplifiers

taste. Apart from the usual extended Naim run-in period there are small matters such as the need to ‘relax’ the cables, the attention required for cable-dressing behind the rack, and choice of router used to connect the ND 555 to the network.

And there are also foibles. For example, instinct suggests one should use the menu in the Naim app to disable unused inputs, if for no other reason than that it simplifies the display on your mobile device. Not so, for word is that the ND 555 sounds best with all inputs *enabled*, although I’ve yet to hear any explanation – let alone a convincing one – why this should be.

If by now you are thinking this is all mythology, so be it, for almost all of these things are no-cost or minimal-cost options – at least when dealing with a player on which you’ve already spent the thick end of 20 grand – and well worth trying.

Our review sample of the ND 555 already had plenty of time on it, and had only recently been removed from a system when we unboxed it and set it up for lab testing and listening, so required

little more than a day or so’s running to get warmed through. That was hardly an onerous task, given just how good it sounded as soon as I connected it into my Naim/PMC system, which has at its heart a very well used NAC52/52PS/NAP250 of the ‘olive’ era, thoroughly serviced in the past year or so. What the ND 555 does is take the rhythmic acuity and sheer musicality of the NDS, and layer on top a good deal of extra insight and detail. It creates even more persuasive soundstage images, and brings you even closer to the recording.

ESPECIALLY THRILLING

That was immediately apparent with Anna Fedorova’s lovely *Four Fantasies* set [Channel Classics CCS413 18; DSD128]. The weight and sonority of the piano was striking, as was the impression of the instrument set in a concert hall acoustic, while the precision and expression of Fedorova’s performances were laid bare, revealing both her technique and the luscious fluidity of her playing.

The final movement of the Beethoven ‘Moonlight’ sonata was especially thrilling, the notes tumbling from the instrument at breakneck speed, but with each one clear thanks to the ND 555’s superb microdynamic ability. Notable, too was the way the player handled the exemplary dynamic range of this recording. ➞

LEFT: Naim’s six-layer digital board – the NP800 – is seen here with the lid lifted from its screened enclosure. The NP800 includes the network connection, custom 16x digital filter and jitter-busting RAM buffer. Connections to the adjacent DAC board are via the I²S format



CHARLIE HENDERSON

Having worked for the likes of Motorola, Jabra and Skullcandy, MD Charlie Henderson joined Naim last year from the Bullitt Group, a UK company making ruggedised phones for the likes of CAT and Land Rover. He sees Naim as ‘a rare beast, sharing an absolute obsession for audio quality with our customers, and with a team whose expertise is the envy of the industry’.

Ahead, he says, is ‘a huge opportunity. It’s how we remind mainstream consumers how music should sound, how it should be emotional, engaging and absorbing – not just wallpaper.’

‘Our focus continues to be on producing the best sound. There is still plenty to do around making this easier to implement, from cables and interconnects to a simplified upgrade path. We’re having discussions about [our] direction for the next ten years. We’ll keep that secret for now, but can’t wait to share more in due course!’

Asked about the company’s somewhat ‘style over substance’ recent communications, he admits that ‘we are working on a refresh of our website this year, with a focus on the product, the Naim journey through the portfolio, and how to listen to great music’.

And yes, to answer a point made in our review of the ND 555, there will also be better and more informative reference manuals for the products, he says, with tips for optimising performance: ‘There’s nothing that can replace the expertise of our dealers and long term Naim employees’.



NETWORK-ATTACHED DAC



ABOVE: Two Toslink optical and coaxial digital ins (one on BNC) are joined by USB-A and wired/wireless Ethernet for network audio. Outputs are on RCAs and a 5-pin DIN. Note the two large connectors to accommodate the DR-series PSU [bottom]

These attributes also served well more complex recordings, whether hi-res or in standard CD quality. Joe Jackson's latest album, the punchy *Fool* [Ear Music 0213592EMU], benefited from the ND 555's crisp, gutsy sound, not to mention the fine weight and definition in the bass. Jackson's voice has both character and clarity, and the presence of the accompanying band was startlingly vivid, from the big swelling slam of the opening 'Big Black Cloud' to the subtlety of 'Strange Land'. The album's big lush soundscape may be some way from Jackson's roots of four decades ago, but via the ND 555 it was no less compelling.

Treat the ND 555 to the 96kHz/24-bit version of *Mare Nostrum III* [ACT 9877-2], the latest collaboration of trumpeter Paolo Fresu, accordionist Richard Galliano and pianist Jan Lundgren, and the sound just shimmers with the detail and subtleties of the recording. The three performers were beautifully placed in an intimate sonic picture,

their instruments rendered in jaw-dropping fashion without ever sounding hyper-real or forced.

Used as an outboard DAC via USB-A or S/PDIF connections, the ND 555 delivered a sparkling performance within the limitations of its digital inputs,

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



but it really came into its own when fed with files via a network connection, whether using its own UPnP capability or via Roon.

Yes, there's maybe a smidge more of that enthralling presence and sheer involvement when used in its native form rather than via Roon, but the difference is so small I suspect those converted to the library/playback software package will use it more, for its convenience.

SUBLIME SOUNDS

I certainly spent as much time with Roon Remote running on my iPad as I did with the Naim app, good though it is, not least because this also opens up Qobuz Sublime+ streaming to the ND 555.

And very enjoyable that is, too, as I found when streaming Santana's slinky 'Lovers From Another Time' [from the *In Search Of Mona Lisa* EP, Concord Records; 44.1kHz/24-bit]. The sound was rich and warm, yet simply packed with musical information, which is the Naim ND 555's sonic signature. ⚡

HI-FI NEWS VERDICT

The ND 555 is remarkable in not just matching the best 'physical media' players but bettering most – and by some margin. Take the required care in installation, be prepared to wait a while for it to come on song, then tweak your set-up to get maximum performance, and you're unlikely to be disappointed. The now-discontinued NDS was excellent, but the ND 555 betters it in sheer involvement and detail.

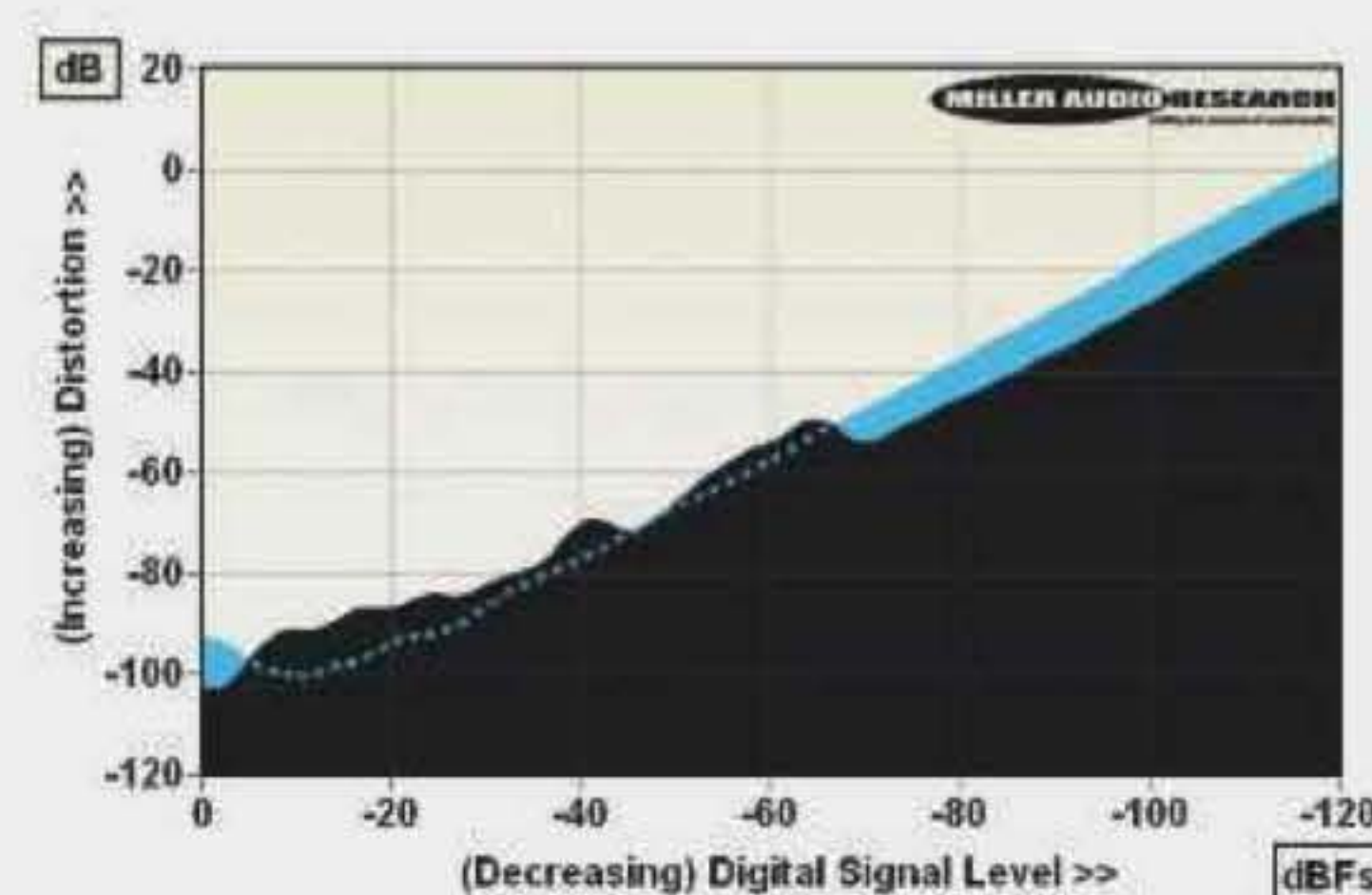
Sound Quality: 89%



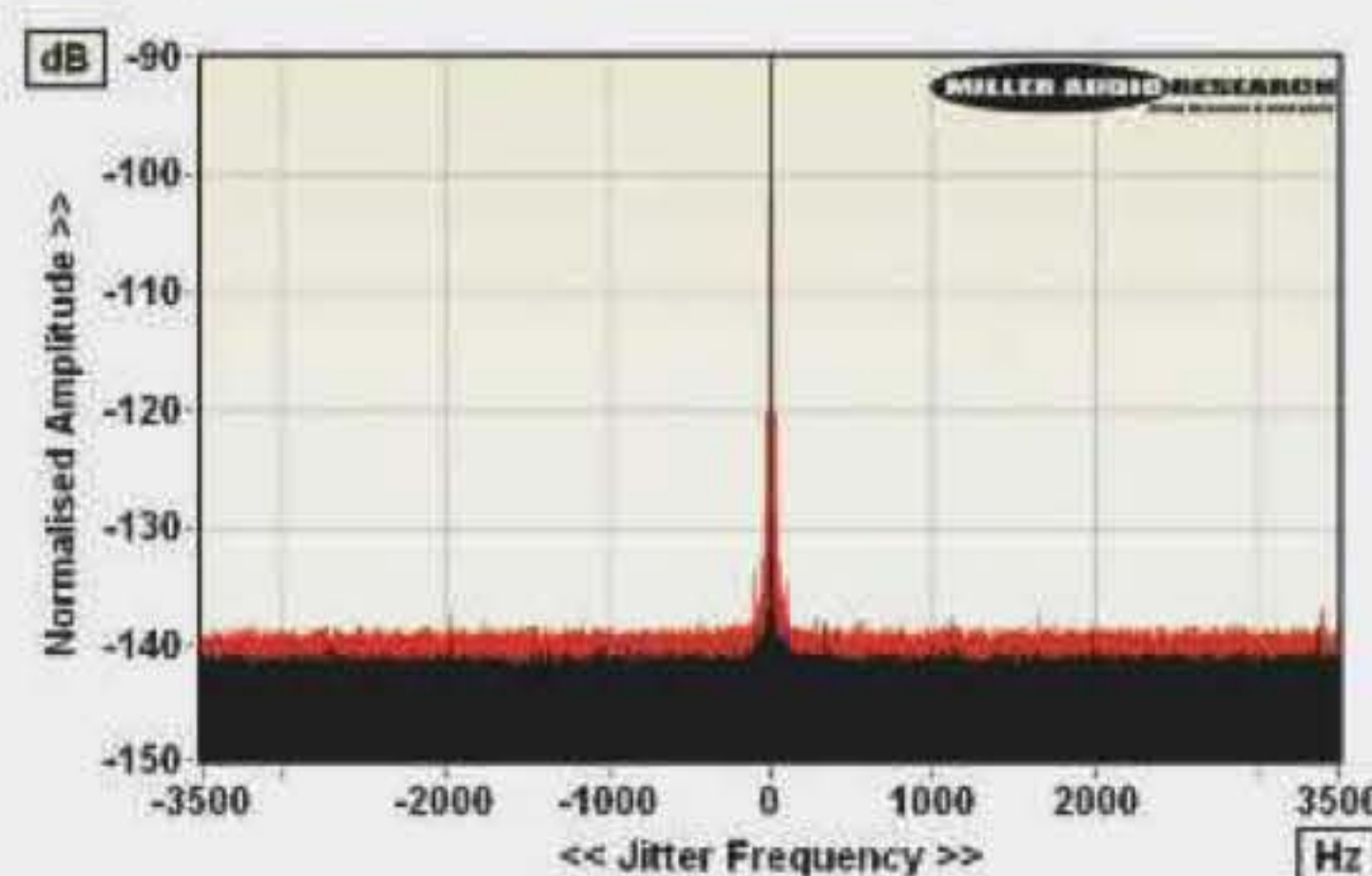
NAIM AUDIO ND 555/555PS DR

Although it would have been insightful to compare the test results for this flagship ND 555 with those for the NDX 2 [HFN Sep '18] and see just what gains the uprated PSU, mechanical isolation and analogue stage may have wrought, any such distinctions are entirely clouded by Naim's choice of alternate DAC chips: the NDX 2 employs the Burr-Brown PCM1792A while the ND 555 is fitted with the PCM1704U. Although both units benefit from Naim's '40-bit' 16x upsampling/jitter-suppressing DSP, the key measurable advantage is realised in the ND 555 as a near-total elimination of correlated jitter [see Graph 2, below]. Otherwise, and like the NDX 2, the fixed analogue output offers a maximum 2.23V from a low 17ohm source impedance (increasing to 170ohm at 20Hz), while the A-wtd S/N ratio is reduced by about 1dB to 108.1dB. Although distortion at spot frequencies and levels is not dissimilar to that of the NDX 2 – with 0.0008-0.006% at 1kHz and 0.002-0.0009% at 20kHz over the top 30dB of its dynamic range – the pattern of THD vs. level is distinctive to the PCM1704 DAC [see Graph 1, below].

Naim's combined digital/analogue filter [see boxout, p37] acts earlier than typical, providing reduced attenuation of stopband artefacts immediately adjacent to the top-end of 48kHz music media (just -43.6dB at 26kHz re. 22kHz) and restricting the response of both 96kHz and 192kHz digital audio to a -3dB point of 27kHz. Lower 44.1kHz/48kHz sample rates feature a (subjectively insignificant) -0.65dB roll-off at 20kHz while Naim's dual-mono analogue stage layout [see far left of inside shot, p36] ensures that channel separation is >100dB through bass and midrange frequencies. PM



ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB dynamic range via S/PDIF/USB-A/network (1kHz, black; 20kHz, blue)



ABOVE: High resolution 24-bit jitter spectrum via S/PDIF/USB/network (48kHz, black; 96kHz, red)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	2.23Vrms / 17-170ohm
A-wtd S/N ratio (S/PDIF / USB)	108.1dB / 108.0dB
Distortion (1kHz, 0dBFS/-30dBFS)	0.00078% / 0.0063%
Distortion & Noise (20kHz, 0dBFS/-30dBFS)	0.0022% / 0.0009%
Freq. resp. (20Hz-20kHz/30kHz)	+0.0 to -0.65dB/-15.9dB
Digital jitter (48kHz / 96kHz)	<5psec / <10psec
Resolution @ -110dB (S/PDIF / USB)	±0.2dB / ±0.6dB
Power consumption	20W (1W standby)
Dimensions (WHD) / Weight (ND 555)	432x87x314mm / 14kg