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Simaudio Moon Nēo 430HA

Respected Canadian builder Simaudio is really shooting for the Moon with this costly high-end headphone amp. Can it really justify its maker's 'world's best' claim?

Review: **Steve Harris** Lab: **Paul Miller**

Only in the last few years has the high-end audio industry begun to offer really high-quality dedicated headphone amplifiers, with or without a built-in DAC. Now Simaudio offers both options with the fully-balanced Moon Nēo 430HA, which is priced at £2700 in analogue form, or £3300 with a built-in DAC and a full range of digital inputs.

If you're already the happy owner of a Moon DAC/CD transport, you'll obviously choose the DAC-less version. Otherwise, you might well think that a digitally-equipped headphone amp makes more sense. We were given the DAC-equipped version to review, so we were able to have it both ways.

TRICKLE-DOWN TECHNOLOGY

As the newest addition to Moon's extensive Nēo series, the 430HA comes with a pedigree [see boxout] and a long-established visual identity. Its solid, machined casework has a luxurious feel, and the front panel features Moon's distinctive curved side cheeks – the right-hand one is cut away to accommodate a comfortably-sized volume knob.

This brings us to what's inside. As with other Nēo models, the 430HA draws on technologies developed for Moon's very high-end Evolution series, for example the over-the-top M-eVOL2 volume control system. This gives no fewer than 530 volume level steps and a claimed channel matching accuracy of 0.1dB.

Also Evolution-derived is the M-LoVo (Moon Low Voltage) DC regulation circuit, giving a power supply with a 'virtually unmeasurable' noise floor. In the 430HA, this power supply sustains a fully-balanced amplifier section using discrete components and with a rated output of 667mW/600ohm or 8W/50ohm, which of course is more than ample for any

headphone, or headphone listener [see PM's Lab Report, p43].

User features include high and low gain settings, to suit headphones of differing sensitivity, and a switchable crossfeed setting. This partly blends the two channels and can give a more relaxing 'out of head' stereo effect on many recordings.

As for the digital section, the DAC is described as 32-bit, fully asynchronous, and intended to accept virtually any digital source, from computer music streaming to satellite TV to Blu-ray player.

Clearly, Moon has set out to cover all the bases in terms of connectivity and facilities, and accordingly the front panel is well populated with control buttons. Layout and labelling is the same whether or not you have the built-in DAC, and a 'digital' 430HA won't look any different until you switch it on, when the digital input settings are revealed by the display.

In the left-hand button group, there's a standby switch that brings the product to

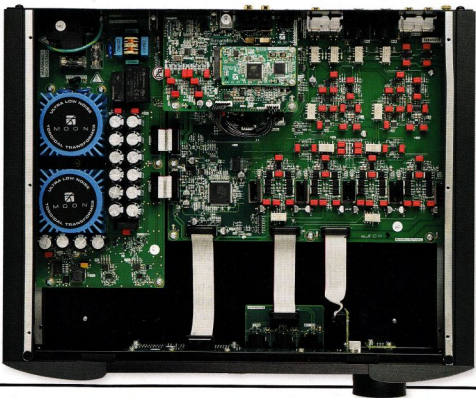
life, lighting up the large display window with an indication of the selected input and the volume setting.

XLR HEADPHONE SOCKETS

If receiving a digital input, the display will briefly show the sampling frequency before reverting to the volume figure. However, you can use the Display button (below Standby) to have the sampling frequency showing at any time. A longer press on this button turns the display off. Completing the left-hand array is one button to toggle between low and higher gain amplification, and another for crossfeed – an LED shows when this is on.

Over to the right is a pair of buttons for input selection, and it is indeed arguably more convenient to have two buttons to take you up or down the list, rather than having to press a single button repeatedly to cycle through it.

Anyway, there are two unbalanced analogue inputs, displayed as A1 and



RIGHT: In addition to Simaudio's dual-mono PSU and 'M-LoVo' four-stage voltage regulation (left-most PCB) our sample has the ES9018-based DSD256/384kHz DAC board fitted



A2, and one balanced, appearing on the display as 'b1'. For the DAC-equipped 430HA, there are also four digital inputs. D1 (displayed as 'd1') is a Toslink optical, while D2 and D3 are RCA phonos, for use with a CD transport, or any network player or music server that has an SPDIF digital output. These accept LPCM audio up to 192kHz/24-bit.

Finally, the D4 input is a USB port,

which is where the Moon's 32-bit DAC really comes into its own if you are pursuing the outer reaches of high resolution. This input accepts LPCM digital sources with sampling rates up to 384kHz and DSD signals at 2.82MHz, 5.64MHz and 11.28MHz (DSD256).

Here, of course, it's really helpful to be able to have the sampling frequency shown on the display, as this confirms what's actually being processed.

Of the two remaining buttons, one is the always-useful Mute switch, while the other, labelled 'MP' for 'music player' switches between the 6.35mm headphone socket output and a 3.5mm mini-jack socket input seen below. However, the 430HA also provides balanced outputs. By putting a finger on the scalloped right-hand end of

'Bass instruments appeared to breathe with a natural presence'

the display window, you can slide this to the left and reveal a pair of three-pin XLRs and a single four-pin XLR socket, which provide for the two main possibilities of balanced headphone connection.

All the controls are neat and nicely laid out, even if the legends are rather small. But in practice, you will find yourself using the 430HA's compact remote control, which duplicates all the fascia's functions.

Not surprisingly, the 430HA's rear panel looks pretty packed. Apart from the analogue and digital inputs there are connections for Simlink system control and a 12V trigger input and output for remote operation, and an RS-232 port to facilitate future firmware updates.

OPEN AND RELAXED

So, with great anticipation I put on a pair of Sennheiser HD650s to put the 430HA through its paces. Listening first of all to the 430HA via its analogue inputs, I was soon won over.

Starting at the top, the treble was clear and clean, not sparkling or fizzing in any exaggerated way, but allowing the headphones to bring you enticing musical nuances without effort. The treble

ABOVE: Along with comprehensive controls, the front panel offers a 1/4in headphone socket, plus balanced XLR output connectors revealed by sliding back the display panel

blended seamlessly into a neutral midrange that again seemed to foster musical communication in an unassuming but tremendously effective way. Down below, the bass end was clean and unfettered, so that acoustic bass instruments appeared to breathe with a natural presence.

Listening to the grooving 'Miss Sun' from *Boz Scaggs' Greatest Hits Live* [Gray Cat GCD 4001] the whole sound of the band was captured in an open, relaxed way that made for compelling listening. When it came to details, I was arrested more than ever by the way Scaggs' guitar echoes each phrase as the great Ms Mone't lets go in her soulful vocal obbligato.

On a recording like Diana Panton's *Red* [Inakustik INAK 9129 CD], where lush strings complement a jazz group, there was a great sense of space and perspective to this lavish instrumental setting. And when the singer entered on the opener 'Say It Over And Over Again', there seemed to be no barrier to the emotional message.

To listen to 'Snow' from Patricia Barber's *The Cole Porter Mix* [Blue Note 50999 5 01468 2 6] was to hear a familiar track coming up fresh in new sonic glories. At the start of the track there was a depth and sonority to the piano sound that exceeded anything I'd heard before on headphones and, tellingly, it retained every bit of its character when the guitar bass and drums came in around it.

At this point, I tried Moon's crossfeed facility. Most people, I think, wouldn't choose to use this on a good modern studio recording like the Cole Porter, although even here some might think it more relaxing. It had the effect of flattening the stereo image behind or across the top of your head and reducing its spread around the sides.

An example of crossfeed working as intended was my old favourite *Art Pepper Meets The Rhythm Section*, recorded >

MOON RISING

Quebec-based Simaudio was founded in 1980, but the company's Moon brand name first appeared only in 1997. It was introduced by Jean Poulin, who had joined Simaudio in the early 1990s and become its owner in 1995. A committed audiophile, Poulin had previously worked in the transformer industry, developing high-tech products for Nortel and other major clients. Now he led Simaudio through a period of expansion that saw it move from a 3000ft² industrial unit to its own 46,000ft² facility, and grow to employing around 40 people. In 2013, when Poulin decided to retire, he maintained continuity by selling the company to a group of long-term employees who had already contributed much to its success. Costa Koulisakis had served 13 years at Simaudio, while Thierry Dufour had been chief engineer for almost 20 years. The newest member of the team, Louis Lemire, was also an engineer, with business acumen too. Today, as always, with work that cannot be done in-house going to local Quebec subcontractors, the Moon products are entirely built in Canada.

SIMAUDIO MOON NĒO 430HA

In certain respects the Moon 430HA's analogue headphone preamp is a stronger contender than the add-on DAC which is less [technically] impressive than Simaudio's standalone models [see NĒO 260D, *HFN* Apr '14]. There's some variance in the specification with our measured results – I'd have expected more than 4.2W/25ohm [see Graph 1, below] from Simaudio's 8W/50ohm rating unless the 430HA has an inbuilt current limitation (suggested from the maximum unloaded voltage output of ~13V). Either way, 4W is absolutely more than sufficient to destroy your hearing with almost any headphone!

Similarly, the rated 0.22ohm source impedance is more like 1ohm in practice once the headphone cables are taken into account, but this is still impressively low and will maintain the hugely extended response (+0.06dB/100kHz) into any headphone offering anything close to this range. The A-wtd S/N ratio is very wide too at 98dB while the low 0.0018-0.00012% distortion is maintained almost regardless of load or practical output. Unlike some headphone amps, all these performance indicators are unaffected by your choice of high (+16dB) or low (+10dB) gain setting, measured in balanced mode.

The DAC stage is less outstanding – distortion is low at 0.0009% (1kHz) and 0.003% at 20kHz and 20Hz [see Graph 2], the response very wide at -4dB/100kHz (192kHz media) and jitter very low at <30ps (all sample rates) but there's some interference popping up 10-15dB above the noise floor that limits the A-wtd S/N to just 96dB. Readers are invited to view comprehensive QC Suite test reports for Simaudio's Moon 430HA headphone preamp and DAC by navigating to www.hifinews.co.uk and clicking on the red 'download' button. **PM**



ABOVE: At the rear are balanced and unbalanced analogue inputs and, if the unit has the optional built-in DAC, a set of digital inputs including Toslink optical, two coaxial (S/PDIF) connections and USB. The RS-232 port allows for firmware updates

in severely left/right stereo in 1957. I actually like the way this comes over on headphones, but pressing the crossfeed button successfully removed the 'hole in the middle' effect. It shifted Pepper's sax from its position outside the left ear to a point well inboard of that extreme and it similarly regrouped the piano trio behind my right ear rather than outside it. Although (unlike Chord's Hugo) the Moon offers only one level of crossfeed, it's a well-judged and really useful option.

OPEN AND EFFORTLESS

Generally, the 430HA could be characterised as open and free-sounding. With the title track from Eric Bibb's *Get Onboard* [Telarc CD-83675], bass and drums had a lightness and bounce that really had your feet tapping. Glen Scott's organ phrases shone through to perfection and even tiny elements in the mix were delineated clearly.

For example, Bibb's characteristic distant answering background vocals can sound quite anonymous, but this time you could very easily hear which of those little vocal licks came from keyboardist Scott and which were Eric's own contributions.

A seamless, organic quality that I'd begun to appreciate in the sound of the 430HA was really evident in classical recordings, where subtleties of timbre and inner detail could make all the difference. Putting on the 2003 Barban recording of Brahms's *Symphony No 1*, by the LSO under Haitink [LSO Live LSO0045], the textures of strings and woodwinds were beautifully realised, and sounds could hang in the air in the most natural and enticing manner.

After this, I tried the 430HA's built-in DAC, first with some familiar CDs as the source. With Eric Bibb's 'Get Onboard' the sound via the

430HA's DAC was still excellent, although compared with the Chord DAC I'd been using before I felt that there was a slight loss of detail and of sheer openness in the stereo picture. The impression was of a big, expansive sound, but it didn't seem to have quite the last bit of foot-tapping life and bounce that I'd heard before. On the other hand, with the LSO Brahms recording, I felt that the Moon was actually a little smoother on the big climaxes.

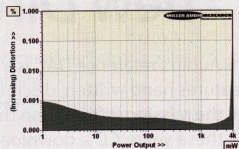
Finally, though, I hooked up the computer to listen to downloaded high-res via iTunes and Pure Music, with sample rates from 88.2kHz to 192kHz. Among the classical recordings I tried were two Naim recordings, the RPO's Mozart *Wind Serenades* [naimcd 118] and cellist Tim Hugh's Wigmore Hall recording *Hands On Heart* [naimcd 118]. With the 430HA in charge, the wind music was appealingly clear-toned yet forceful, while Tim Hugh's account of the Kodaly sonata was truly gripping.

When I turned yet once more to female vocals, with the lovely Marta Gomez track 'Lucia' from HDtracks [Entre Cada Palabra, Chesky JD301], the 430HA revealed the most subtle shimmer in the singer's voice while guitar, percussion and accordion all had real attack and believable presence: an effortless sound. **Ⓞ**

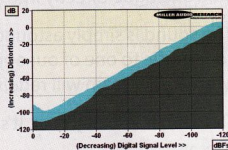
HI-FI NEWS VERDICT

Built to last and supplied with a 10-year guarantee, the 430HA offers useful facilities as well as balanced operation and great sound. Sonically, as an amplifier, it gets out of the way and lets the music come through with freedom and aplomb. While the DAC section can't, perhaps, claim the same supremacy as the amp part, its inclusion helps make this a truly practical, admirable, and desirable product.

Sound Quality: 84%



ABOVE: Continuous power output versus distortion into 25ohm 'headphone' load



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

HI-FI NEWS SPECIFICATIONS

Maximum output (re. 1% THD into 47kohm)	12.5V
Max. power output (re. 1% THD into 25ohm)	4208mW
Output impedance (20Hz-20kHz)	1.10-1.18ohm
Maximum gain (High/Low setting)	+16.1dB/+10.1dB (balanced)
A-wtd S/N ratio (re. 0dBV)	97.8dB (balanced)
Frequency response (20Hz-20kHz/25ohm)	-0.0dB to +0.1dB
Distortion (20Hz-20kHz, re. 40mW)	0.0018-0.00012%
Power consumption	22W (2W standby)
Dimensions (WHD) / Weight	429x89x351mm / 9kg