Streaming preamp/stereo power amplifiers. Rated at 300W/8ohm
Made by: Simaudio Ltd, Quebec, Canada
Supplied by: Renaissance (Scotland) Ltd, Edinburgh
Telephone: 0131 555 3922
Web: www.simaudio.com; www.renaissanceaudio.co.uk
Prices: £25,000 (891)/£23,000 (861)

Simaudio MOON 891/861

Flagships of the Canadian marque's North Collection, this pre/power pairing mixes muscular solid-state amplification with bespoke digital solutions and slick control

Review: **Mark Craven** Lab: **Paul Miller**

Priced at £25,000 and £23,000 respectively, the 891 and 861 sit at the top of MOON by Simaudio's North Collection. Combined, they hope to bring everything that might be needed to a modern-day, high-end listening room, from streaming and app control to turntable compatibility and some good, old-fashioned speaker-driving power.

How much power? The claim is 300W/8ohm a side, doubling into 4ohm and with 'generous headroom' [see PM's Lab Report, p55]. A dual mono design built around twin 1.5kVA toroidal transformers, the 861 is also rated to 800W/8ohm when switched into bridged mono mode. Add in reservoir capacitance topping 150,000µF per side within an expansive 481x609mm (wd) footprint, and it has all the 'monster amp' credentials, even if it's overshadowed by the manufacturer's 888 model, an 888W-rated monoblock weighing 136kg.

NORTH STARS

That unit debuted in 2017 and remains on sale for £66,800. But it doesn't feature the new MOON Distortion-Cancelling Amplification (MDCA) technology at the heart of the 861 [see PM's boxout, p53]. Another change at Simaudio in the intervening years is the division of new models into North and Compass. The latter is entry-level and includes the 371 integrated [*HFN* May '26] while North is said to represent 'the most advanced expression of MOON engineering, refinement, and performance'.

Four other products currently complete the series. The 791 preamp (£16,000) and 761 power amp (£14,000) are an alternative to the system tested here, while the 681 (£12,000) is a variable-output streaming DAC and the 641 (£11,000) an integrated amplifier. Aside from varying dimensions the units look broadly similar, with black alloy fascias flanked by curved, silver-coloured cheeks, and the MOON logo prominently displayed.

HYBRID HEART

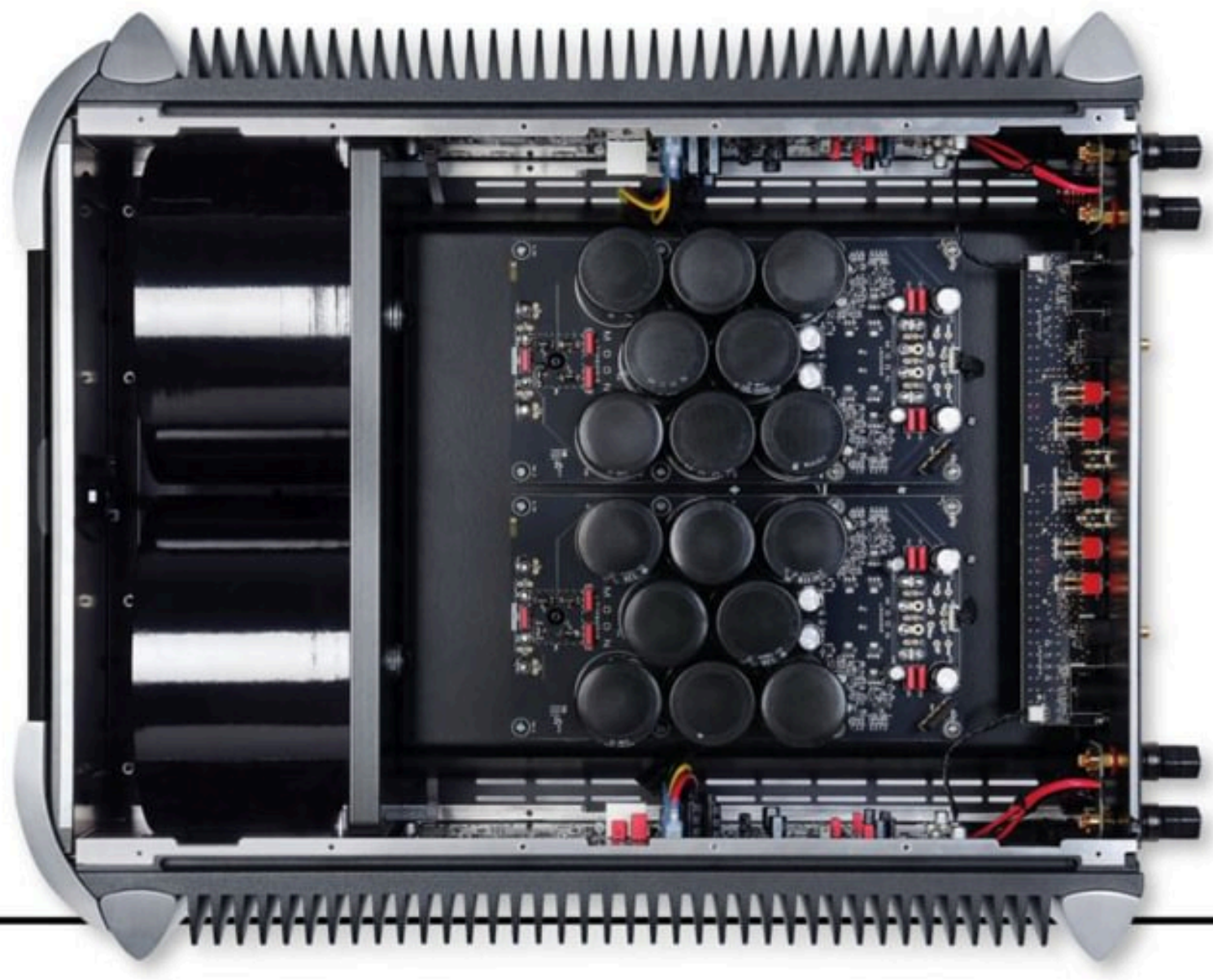
The 891 isn't the all-analogue model you might expect from a series flagship, as it has built-in DAC and streaming functions. Simaudio's design pays attention to isolating these from the preamp's analogue circuits, including a dedicated power path for its digital board. The 891 also features an internal 'Damping Base' that compliantly mounts PCBs to prevent ingress of structural-borne vibration. This base is sufficiently decoupled that the 891 is shipped with transit bolts in place, to be removed before use and stored in adjacent holes.

> 'The 891 isn't the all-analogue preamp you might expect...'

The preamp's MiND 2 network platform is accessed via wired Ethernet or Wi-Fi and enables playback from local network shares, Internet radio and streaming services including Qobuz, Tidal and HRA (Highresaudio) through the associated MiND Controller app – there's Roon and AirPlay compatibility too. Streamed files, plus audio from a choice of digital inputs including computer and host USB ports, HDMI eARC and AES/EBU [see pic, p55], are then handled by the 891's MDE-3 DAC stage.

In practice, this marries custom FPGA data processing/reclocking with two eight-channel ES9038PRO DACs for a balanced, dual-mono design. Native sample rates, via USB and the MiND 2 interface, reach 384kHz/32-bit PCM and DSD256.

Analogue connections are not as extensive, with single line inputs on balanced XLRs and unbalanced RCAs, plus a phono input offering MM and MC presets and settings for gain, capacitance and impedance. Considering the 891's lofty



RIGHT: Inside the 861 power amplifier showing dual-mono layout with one 1.5kVA transformer [left] and eight 100V/19,000µF reservoir caps [centre] per channel feeding eight pairs of power transistors per side [on heatsinks]

'The volume rotary is fast and responsive, the menu layout is intuitive, and album artwork looks crisp'

LEFT: Atop the 861, the 891 preamp's 110mm colour display shows source, volume and album art. Pushbuttons and the volume rotary navigate onscreen settings menus

positioning, another pair of balanced XLR inputs (*ie*, to support both an outboard DAC and CD player) would have been nice.

SCREEN PLAY

To the left of a set of 4-pin XLR sockets for use with the optional MOON 820S external PSU are balanced XLR and single-ended RCA outputs. These can be set to fixed level should you wish to bypass the preamp's discrete resistor-based volume control, which is configurable for operation in 0.5dB or 0.1dB steps between 20dB and 80dB. These settings, plus other options (standby modes, display brightness) are managed using the amp's colour display. Missing in the 891's menus are tone and balance controls. There are no user selectable digital filters either [see PM's Lab Report, p54].

That 4.3in/110mm display is worth lingering over, being one of the best I've encountered. It's not a touchscreen, but navigation through the adjacent pushbuttons and volume rotary is fast and responsive, the menu layout is intuitive, and the presentation of album artwork is crisp. Equally slick is the 891's Bluetooth-based BRM-1 remote [see pic, p55]. Also sold as an £890 optional extra for the MOON 371 integrated and charged via USB-C, this table-top design has a large, smooth volume rotary, inside of which is a display that illuminates to reveal chosen volume and touch-sensitive icons for mute, play/pause and track skip. A tap on the screen changes the remote to input selection mode. I'm not always keen on handsets that move away from the traditional 'wand', but I enjoyed using this one.

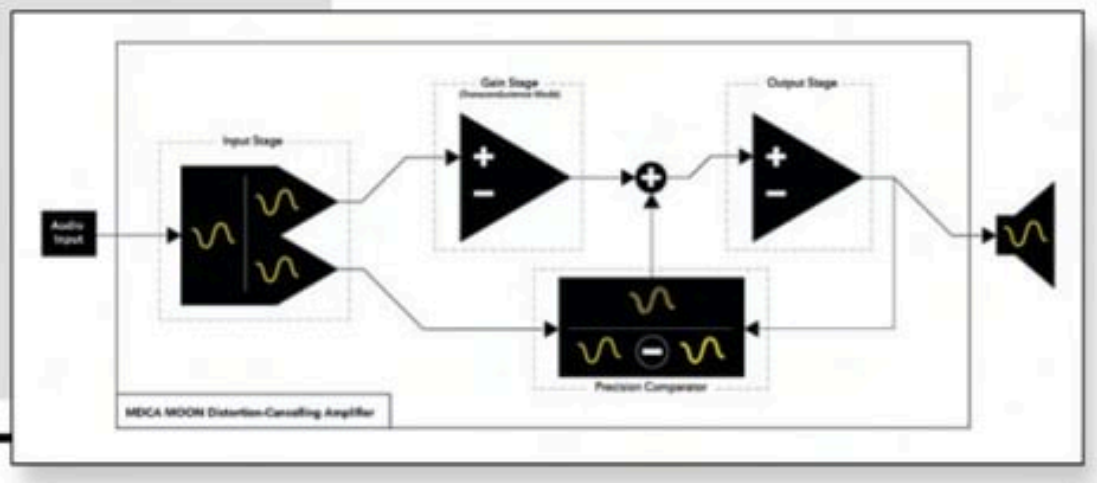
CIVIL SERVICE

Refined might be the word here. The 861 power amplifier has undoubted 'grunt', as shown by the powerful, unconstrained performance it wrought from the Wilson Audio Alexx Vfx and JBL Summit Makalu loudspeakers [*HFN* Sep '26] in the *HFN* Listening Room [see p43]. Yet this range-topping MOON system doesn't throw its weight around unduly, instead giving a controlled, precise delivery. It's clean and transparent too. Grip and detail are favoured over cloying richness in the low-end, and the system avoids romantic tonal flourishes. High-frequency information is superbly resolved, but this is coupled to

MOON DISTORTION-CANCELLING AMPLIFIER

This MOON-branded power amp from Simaudio is very much more than a 'big-boned' replacement for the 860A v2 [*HFN* Jan '20] with its now highly polished performance, and sound, directed by the brand's proprietary 'Distortion-Cancelling' circuit. MDCA is a parallel compensation process that deals entirely with optimising signal linearity rather than managing gain and/or bandwidth – that remains the preserve of local or nested feedback. The broad circuit blocks are illustrated in the diagram [inset, below] showing the main voltage amplifier – this is a transconductance stage delivering the full +31.4dB gain – sandwiched between a unity-gain input buffer and a unity-gain current/power amp. The output of the power amp block is compared with the output of the 861's input stage and an error signal derived from the difference (distortion, correlated noise, DC offset, *etc*), correcting for non-linearities introduced by the 'gain' and current stages. In practice this concept is not a million miles removed from the feed-forward correction pioneered by Quad in its 405 current-dumping amplifier [*HFN* Apr '76], by Sansui [*HFN* May '81] and, in more evolved forms, by Chord Electronics [*HFN* Feb '19], Hegel [*HFN* Oct '18] and Benchmark [*HFN* Mar '15].

The precision comparator is wholly analogue – there's no DSP here – applying correction on a dynamic basis. The proof of the pudding is realised not simply in the 861's very low static distortion but also in how this is maintained over a very wide frequency range, power bandwidth [see Lab Report, p55] and *temperature*. Thermal drift, causing unpredictable changes in distortion as an amplifier's output stage heats and cools under real-life signal conditions, is a very real side effect of 'low feedback' designs. Not so with the 861 – in a full hour of 'burn in', distortion varied between just 0.00026-0.00028% (re. 1kHz/10W/8ohm) as the heatsink temperature rose from 20°C to 40°C. PM



ABOVE: Switchmode MHP PSU has separate supplies for the digital board [top left] with its StreamUnlimited Wi-Fi/streaming platform, XMOS USB microcontroller and AK4137EQ SRC. Two ES9038PRO DACs are on the (compliantly mounted) main PCB [underneath] with an ES9822QPRO ADC [centre], line and phono stages [top right]

a sweet, smooth presentation that makes for listening sessions that are relaxed and unfatiguing.

There are differences to be heard using the 891 as a line-level analogue preamplifier and bypassing its digital stages, however. The MiND 2 streaming module and MDE-3 DAC architecture seem to take a particularly even-handed approach, offering clarity and articulation without any feeling of exaggerated detail. Coupled to assured soundstaging, you get a natural, cohesive portrayal. But use this pre/power system with external analogue sources and it can sound a little looser, a bit more vibrant. Sound seasoning is therefore possible, and the partnering MiND Controller app makes A/B comparisons between sources fast and simple.

IRON WILL

Streamed via Qobuz, Iron Maiden's 'Fear Of The Dark', the closing track from the 1992 album of the same name [Parlophone; 44.1kHz/24-bit], benefitted from the 891/861's drive and resolution. The bass guitar parts are prominent in the mix, and here the finger-picked notes carried a definite leading edge. The spread of the sound was well-handled too, with vocals and drums strong in the centre, framed by expansive guitar parts either side. From start to finish it sounded clear and focused, but still suitably hard-hitting.

EMPIRE BUILDING

The Berlin Philharmonic recording of the 'Imperial March' [*Star Wars: Episode V – The Empire Strikes Back*, DG; 192kHz/24-bit] evinced the MOON amps' ability to handle the weight, scale and dynamics of a full orchestra. Military rhythms, delivered by strings and percussion, were tight and attacking, while the brass motif was rife with textural details to give it an organic quality. All this musical drama, complete with nicely integrated background wind instruments, was painted on a wide canvas that also offered plenty of depth cues.

> 'It burbled along in head-bobbing style, aided by a jaunty guitar'

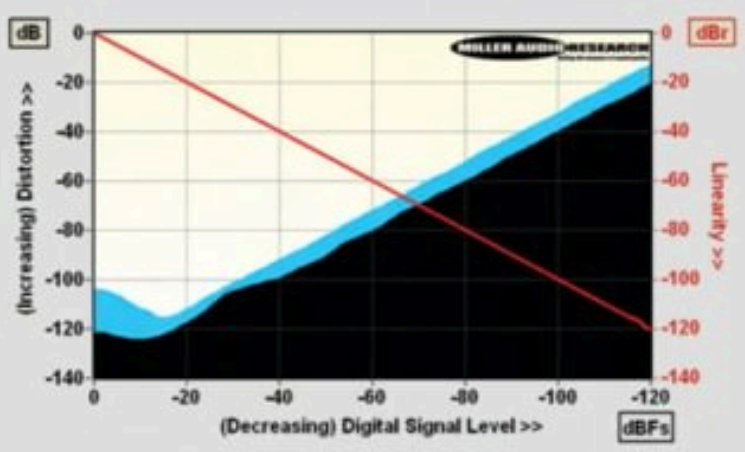
I've heard other amplifier systems offer a greater forward 'push', giving you a view of the music that's more front row than middle of the auditorium, but that is an observation not a criticism. This aspect of the 891/861's presentation contributes to a consistently refined listening experience. Jamie Woon's 'Skin' – a sparse, staccato track from the neo-soul musician's *Making Time* album [PMR Records 4756063] – was conveyed with excellent width and clarity, plus a well-struck balance between the vocal harmonies and gentle accompaniment.

LAB REPORT

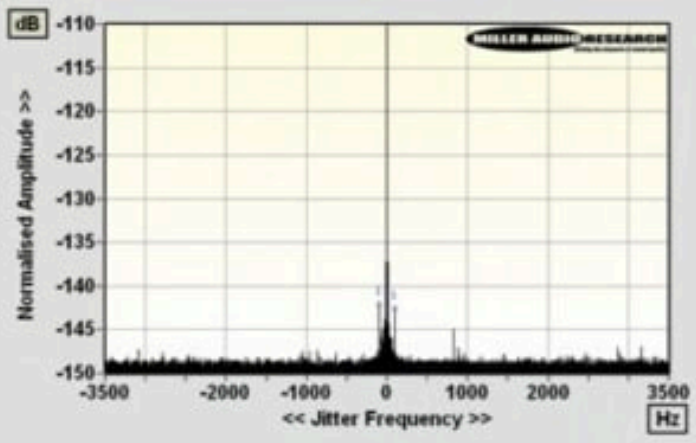
SIMAUDIO MOON 891

Treated as a balanced line preamplifier, the 891's maximum output depends on the input trim ('offset' in the menu). This was set to +2.0dB here to deliver a +5.7dB gain (as close to 6dB as possible!), realising a maximum 12.5V balanced output from a 47ohm source impedance. The input overload margin is unaffected by the 'offset'. The digitally-governed volume is very precise with ±0.5dB steps from '80' down to '20' – a 60dB range with an error of just –0.03dB – and then 1dB steps from '20' down to '1' extending the useable range to 78.8dB. Distortion falls to a minimum of 0.0001-0.0004% (re. 0dBV, 20Hz-20kHz) which is perfectly in tune with that achieved by the DAC stage – see below. The 102.9dB A-wtd S/N ratio (re. 0dBV) is fabulously wide while the frequency response is very extended at +0.0dB to –0.02dB (20Hz-20kHz), reaching out to –0.65dB/100kHz.

The 891's ES9038PRO DAC-based digital section offers a maximum 6.34V balanced (XLR) output with a peak 0dBFs input and the volume set to '80'. The output is phase positive and Simaudio's digital filter of choice is the fast minimum phase type offering a 75dB stopband rejection, zero pre-ringing and responses that reach out to –0.1dB/20kHz, –0.45dB/45kHz and –2.0dB/90kHz with 48kHz, 96kHz and 192kHz media, respectively. Distortion is vanishingly low, and well below the 891's specification, at 0.00008-0.0009% with a 0dBFs input (re. 20Hz-20kHz), falling still further to a minimum 0.00005-0.0005% over the top 20dB of its dynamic range [see Graph 2]. The A-wtd S/N ratio is a huge 119dB and low-level linearity good to ±0.2dB over a 110dB range [red trace, Graph 1] while jitter is a mere 5psec of rectifier-induced sidebands [see Graph 2]. **PM**



ABOVE: Distortion versus 48kHz/24-bit signal level over a 120dB range (1kHz, black; 20kHz, blue) plus resolution/linearity (1kHz, red trace and Y axis)



ABOVE: High res. jitter spectrum with 48kHz/24-bit data showing a minimal 5psec of ±100Hz sidebands

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	12.5Vrms / 47ohm (XLR)
A-wtd S/N ratio (S/PDIF / Network)	118.9dB / 118.8dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.00008% / 0.0009%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.00095% / 0.00075%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to –0.1dB/–0.5dB/–2.0dB
Digital jitter (48kHz / 96kHz / 192kHz)	5psec / 7psec / 8psec
Resolution (1kHz @ –100dBFs/–110dBFs)	±0.1dB / ±0.3dB
Power consumption	25W (4W standby)
Dimensions (WHD) / **Weight**	481x140x449mm / 19kg

ABOVE: The 891 pre [top] offers two Wi-Fi/BT antennas, two wired Ethernet, USB-A (external drive), USB-B (computer), two optical/two coax, AES and HDMI/ARC digital inputs alongside MM/MC phono, two line ins and two preamp outs (one each on XLR). The 861 power amp [bottom] has MOONLink Ethernet ports, RCA/XLR ins, lock-tight 4mm speaker outlets plus DC/AC coupling and bridged mono mode switches

Switching sources to our dCS Varèse system [*HFN* Feb '26], Wilco's 'I'm The Man Who Loves You' [*Yankee Hotel Foxtrot*; Nonesuch 192kHz/24-bit] burbled along in head-bobbing style, propelled by jaunty and strummed acoustic guitar – the MOON pre/power, although unchallenged in terms of slam and bass extension, still brought out the natural weight of the instruments.

OPEN HEART

The final parts of the song are layered with instruments, and I was struck by how easily these amps picked it all apart. They also revealed the warm, analogue-style glow the producers aimed for, both here and on the more laidback, 'Jesus, Etc', with its gorgeous string tones.

As for muscle-amp bombast, the 861 will deliver if the situation demands it, which I discovered from the MOON system's fire-breathing rendition of Led Zep's 'Heartbreaker' [*Led Zeppelin II*, Atlantic; 96kHz/24-bit]. Jimmy Page and John Paul Jones in lockstep crunching through the blues riff, John Bonham thumping a drum kit that seems to loom over the whole band... At a 'sensible' listening level the sound was big, energetic and open, and remained so as I spun the volume control on the BRM-1 remote.

At the other end of the audio spectrum, Anna Leone's 'My Soul I' [*Wandered Away* EP, Half-Awake; 44.1kHz/24-bit] found the amplifiers treading lightly through mournful vocals and picked acoustic guitar, augmented by wisps of electronica. It was hard not to be swept up by the delicate but expansive atmosphere, or relax into moments of fluid, fulsome bass. This MOON duo has both room-filling power and impeccable taste.

ABOVE: Compatible with all North Collection models, the BRM-1 remote pairs via MOONLink, centralising volume, input selection and streaming playback

HI-FI NEWS VERDICT

Avoiding the minimalism of some high-end pre/power set-ups, Simaudio's MOON 891/861 takes a modern approach by integrating digital, network and vinyl functions. While this might not suit all hi-fi 'traditionalists', the system's ease-of-use and build quality are bound to impress – as will its performance. There's a precise, nuanced and artful feel to the sound here, allied to no shortage of power and dynamism.

Sound Quality: 89%

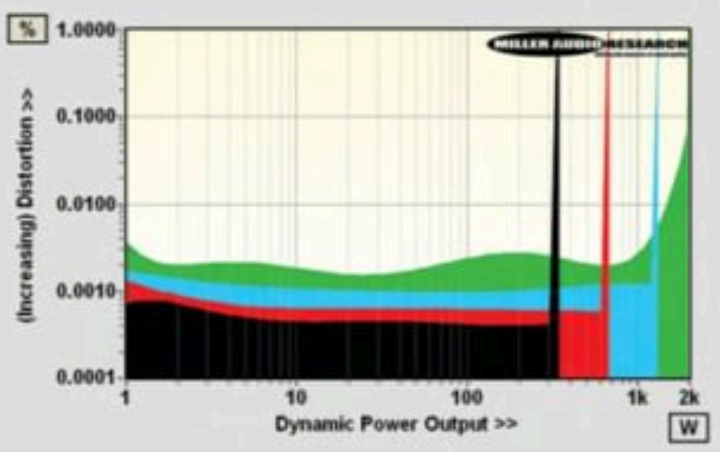
0 - - - - - - - - 100

LAB REPORT

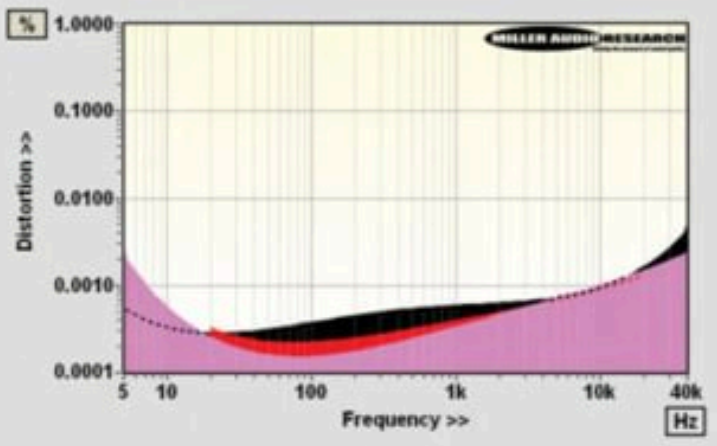
SIMAUDIO MOON 861

There are clear differences between Simaudio's earlier 860A v2 power amp [*HFN* Jan '20] and this newer 861 model, not least in the size of the latter's PSUs and in the use of its proprietary MDCA signal correction [see boxout, p53]. The 861 is by far the beefier, more load-tolerant amplifier, rated at 2x300W/8ohm in place of the 860A v2's 225W and delivering 2x345W/8ohm and 2x670W/4ohm in practice. The supply regulation is so stiff that there's little extra headroom under dynamic conditions, although the +2.9dB lift between 345W/8ohm, 675W/4ohm and then 1.31kW/2ohm is very close to a 'perfect' (+3dB) doubling into each halving of load impedance [see Graph 1]. The +1.9dB boost to 2.02kW into 1ohm is significantly higher than the 860A v2's current-limited 360W although big brother here still shares its +31.4dB overall gain and super-wide 96.7dB A-wtd S/N ratio. Either way, the 861 is very much more able to tackle the most 'difficult' low impedance/low sensitivity loudspeakers.

Refinements are found in both response and distortion. The former is now flat out to –0.2dB/20kHz and –3.2dB/100kHz while the DC servo no longer has the 860A v2's errant +0.9dB boost at 1Hz. In AC-coupled mode the LF response rolls away to –1dB/10Hz and –3dB/5Hz. Distortion, courtesy of MDCA, is exceptionally well managed versus power output, holding to between 0.00025-0.0005% over the 861's full 300W power bandwidth (re. 1kHz/8ohm). Arguably more impressive still is how MDCA maintains this very low distortion even at high frequencies where THD is just 0.0015%/20kHz from 1-100W [see Graph 2] and CCIR intermodulation distortion a mere 0.00013% (re. 19/20kHz at 10W/8ohm). **PM**



ABOVE: Dynamic power output versus distortion into 8ohm (black), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Maximum current is 44.9A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black; 10W, pink; 100W, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	345W / 670W
Dynamic power (<1% THD, 8/4/2/1ohm)	345W/675W/1.31kW/2.02kW
Output imp. (20Hz–20kHz/100kHz)	0.010-0.045ohm / 0.26ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.00dB to –0.22dB/–3.2dB
Input sensitivity (for 0dBW/300W)	77mV / 1350mV
A-wtd S/N ratio (re. 0dBW/300W)	96.7dB / 121.5dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.00012-0.0014%
Power consumption (Idle/Rated o/p)	75-110W / 1005W
Dimensions (WHD) / **Weight**	481x210x609mm / 57kg