

DS Audio DS 003

With the DS 003, DS Audio delivers its 3rd generation technology in a system one-tenth the price of its flagship Grand Master. Can it hope to offer a taste of its authority?

Review: **Ken Kessler** Lab: **Paul Miller**

Testing to what I firmly believe is a 'hi-fi truth' – that differing technologies have innate sonic traits, eg, valve vs transistor – is this latest DS Audio 'optical' cartridge, the £4995 DS 003 with matching energiser. It replaces the £5050 DS 002 [HFN Jun '17], so there's even a slight price reduction.

DS Audio cartridges certainly possess a family sound. Seasoned audio enthusiasts might agree that all the various types – MM, low- and high-output MC, strain gauge, Decca/London, moving-iron, moving-flux, and in this case optical – all exhibit specific characteristics. Cantilever material and stylus profile offer some differentiation within a given range and so it is here, in part, with the new DS 003.

MATCH POINTS

Fitted to the DS 003 are an aluminium cantilever and line-contact stylus, contrasting with the outgoing DS 002 (same cantilever but Shibata stylus) and the Master 1 [HFN Dec '17] with its sapphire cantilever and Micro Ridge stylus. It's also possible to 'mix 'n match' within the DS Audio catalogue as all the company's cartridges work with all of its energisers, so in *reduction ad absurdum*, one could feed the £13,795 Grand Master [HFN Feb '21] into the £1481 DS-E1 [HFN May '19] energiser, or vice versa – the £1162 DS-E1 cartridge into the massive two-chassis £39,900 Grand Master energiser.

I tried the DS 003 with both the DS-E1 and Master 1 equalisers to gauge the performance of the DS 003EQ, which sits in between them in the catalogue. It's worth noting that existing owners of a DS Audio pick-up or equaliser can purchase either the DS 003 cartridge or DS 003EQ equaliser separately, the cartridge costing £2298, the equaliser £3147. Purchasing them together saves £450.

RIGHT: Inside the DS 003EQ energiser / equaliser showing screened PSU transformer [under cover, left], 5x33,000µF/25V electrolytics per channel [lower right] with equaliser/bass filter and active preamp output [top right]

I find the differences between DS Audio cartridges to be far greater than the differences between the various energisers/equalisers. Suffice it to say, each cartridge works perfectly with its matching energiser in terms of value and overall balance, but don't let that stop you from purchasing, say, an DS-E1 cartridge with a DS 003EQ, or a Master 1 with a DS-E1 energiser.

Company President Tetsuaki 'Aki' Aoyagi [see boxout, p47] has confirmed there's a trade-in policy for owners who wish to upgrade cartridge or energiser, so you will never be stuck with either, as each can accommodate the upgrading of the other.

As for the differences between the DS 002 and DS 003, the latter really is a new model rather than a refinement. It represents the 3rd generation of DS Audio's

optical technology [described in great detail by Editor PM in all our previous reviews] and employs the main cartridge mechanism from the flagship Grand Master.

LIGHT WORK

Cantilever and stylus mark the territory between the two, as does body material. The Grand Master uses a diamond cantilever and Micro Ridge stylus, with a body of 'ultra duralumin', while the DS 003 uses the aforementioned aluminium cantilever and line-contact

stylus, with aluminium body. Inside the DS 003 is a re-designed optical system with independent LEDs and photo-detectors for the left and right channels, providing a claimed increase in output voltage from 40mV to 70mV. DS Audio also claims an

'The guitar playing exists in its own dimension'



RIGHT: Alloy body and top plate with threaded lugs ensures the DS 003 can be bolted tight. Decorative LED strip is separate from the internal LED that 'powers' the photocells and generates the audio output

improved signal-to-noise ratio and reduced crosstalk [see PM's Lab Report, p49].

A smaller beryllium shading plate [this modulates the light falling on the photocells] brings a 50% weight reduction, down to 0.74mg, with a substantially different shape. This is said to be less than 1/10th of the mass of an MC cartridge's core and coil system. The DS 003's internal wiring is also 1.6 times thicker than in previous models, to lower its impedance.

As for the DS 003EQ, DS Audio has increased the thickness of the PCB from 1.6mm to 2.0mm and copper foil from 35µm to 70µm over that of the DS 002 equaliser. The DS 003EQ provides four levels of cut-off for the low-frequency range, via two sets of RCA outputs and a two-way toggle selector.

NEW EARS

Aside from the shallow body, which will either necessitate lowering the arm (with care not to foul the LP edge with tapered tonearms) or to use spacers, the DS 003 is incredibly straightforward to deploy. The pins are colour-coded, and the tracking force is absolutely spot-on at 2.1g.

Choice of bass roll-off is a matter of system matching, especially when moving from big floorstanders to small two-ways like LS3/5As. That's because this cartridge delivers massive amounts of lower octave action – so powerful that I heard my system with new ears. The Wilson Sasha DAW [HFN Mar '19] is even more 'massive' down below than I realised, especially after playing the Jimi Hendrix collection *Voodoo Child* [Classic Records RTH-206].

What drew me to it was an article I had seen recently about rock trios in which one member overshadowed the other two, eg, Clapton in Cream. What the author explained with utter lucidity was the worth of Noel Redding and Mitch Mitchell on bass and drums respectively.

BELOW: The sculpted alloy faceplate and profiled casework of the DS 003EQ is clearly modelled on the much larger Grand Master EQ



INSET: (Below) DS Audio's line-contact stylus mounted into the crimped end of its alloy tube cantilever (pictured at x30)

From the opening notes of 'Purple Haze' through all eight sides (except for, of course, a few Band Of Gypsys tracks), the article was validated, both musicians driving Hendrix along, not merely complementing him.

From little fills to cavernous thunder, the DS 003 extracted all the bass energy and percussive slam with richness and control, sounding like a cross between a classic Japanese moving-coil and a Decca. I was reminded of the latter's speed, attack and precision, but that was not all. There was an uncanny, Koestu-esque fluidity which manifested itself in the strangest way.

Let's not be coy: early Hendrix LPs were in many ways 'kitschy psychedelia' thanks to lots of weird left-right panning and level phasing. The DS 003 expanded the soundstage and created within it a consistency that allowed the panning to be accomplished with the smoothest travel you could hope to hear, eschewing dead

areas, while the in-out phasing was equally effortless. This authority also enhanced the front-to-back depth experience of, er, the Experience, so even though the gimmicky effects are dated, you hear without obstruction how the musicianship remains – after 50-plus years – without peer.

And if you want to understand atmosphere, listen to 'The Wind Cries Mary' via the DS 003, and hear how the guitar playing seems to exist in its own dimension – not merely its own space.

SILKY CUT

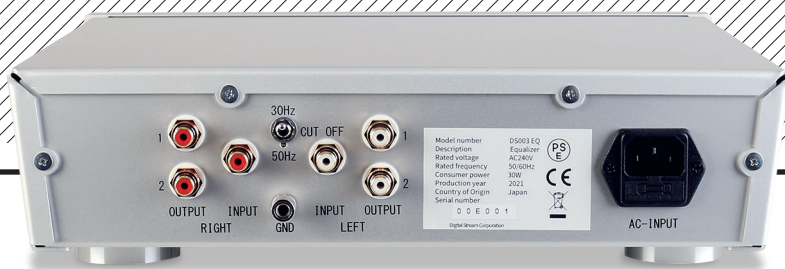
More conventional is the 1972 orchestral version of the Who's *Tommy* [Ode SP99001], which remains unnecessary, as the original release was majestic enough. Whatever the reason, Pete Townshend sanctioned this performance of the rock epic with A-list guests – Rod Stewart, Ringo Starr, Richie Havens, Maggie Bell, Merry Clayton, Richard Harris, etc – backed by the LSO. It would be followed by the film soundtrack, a live performance from a few

TETSUAKI AOYAGI

DS Audio's Tetsuaki Aoyagi (Aki) was a certified accountant before joining Digital Stream Co., Ltd. Says Aki, 'I studied accounting and management because I was thinking of starting a business, making products no-one had ever created, but my knowledge of engineering came from product development at DS Audio'.

Aki was not a traditional 'hi-fi guy', but his initiation was also a revelation. 'One day, a company advisor, an audiophile, invited me to listen to some LPs because I had never heard vinyl at that time', remembers Aki, 'the first song he played was Michael Jackson's "Thriller". I was shocked by the sound, so much better than my iPod! I could not believe it.' Watching the LP spin and seeing the cartridge glow, Aki was converted. 'It was a Toshiba C-100P optical cartridge and I asked him why it lit up. He explained the technology and gave me a C-100P.'

Impressed by the long-out-of-production device, Aki thought, 'If I make an optical cartridge with current technology [LEDs and photo-detectors], the sound should be even better. This would make many people happy – just what I was looking for!'. Development of optical cartridges began the very next day, Aki launching the company DS Audio in 2013.



ABOVE: Rear view of the DS 003EQ PSU/equaliser. The pick-up's internal LED is powered via the R- and L- pins while the output is returned via R+ and L+, all via the 'Input' RCAs. The equalised outs are filtered at 30Hz or 50Hz (steeper via output 2)

years ago, and who knows what else, but this oozes pedigree despite it now being redundant.

And what a sound! The grandiosity matches the LSO's more traditional fare, and through the DS 003 it called to mind, of all things, some of the better-sounding Arthur Fiedler and The Boston Pops open-reel tapes. The feel was silky, with that inimitable air possessed only by opera and Broadway stage recordings. As it's 50 years old, the voices have changed, especially Stewart's, but the sonority and diction of the inimitable Richard Harris emerged so lifelike from the system that I was compelled to hook up LS3/5As to make sure I was hearing such authenticity.

ULTRA CRISP

More pointless than an orchestral version of *Tommy* is the 2020 'reimagining' of a masterpiece. Yusuf/Cat Stevens (yes, that's how he's billed) and the original producer, former Yardbird Paul Samwell-Smith, re-recorded *Tea For The Tillerman*² [Cat-O-Log Records 02508 88695] with mainly leaner arrangements. The DS 003 revealed that his voice has altered less over

the decades than has Stewart's, while the instruments' harmonics were breathtakingly convincing.

Again, the DS Audio technology – here come the traits – demonstrated background silences, openness, freedom from fatigue and anything else that could mar such crystalline sound. This was evident on every track of the mono remastering of The Turtles' *Golden Hits* [Demon DEMREC628], capturing Johnny Barbata's ultra-crisp drumming and new-to-me low-level details in the impossibly familiar 'Happy Together'.

If one is lucky enough to listen to a world-class component, there's usually a watershed moment, one of a revelatory nature that tells you when something truly is special. For the DS Audio DS 003, it arrived with both the discoveries among The Turtles' tracks, but especially the remastered *Ladies Of The Canyon* from the box set, *Joni Mitchell – The Reprise Albums 1968-1971* [Rhino R1653984].

Mitchell possesses a voice of such unique clarity and fragility that it is immediately recognisable, while 'Big Yellow Taxi' is a song I've heard so many times I thought I knew every millisecond. The DS Audio DS 003 performed the miracle that elevates a component from the merely superb to the magnificent: it made the song sound like I was hearing it for the first time. I am smitten. ☺

HI-FI NEWS VERDICT

The DS 003 shows emphatically how trickle-down technology benefits the customer, while maintain a pecking order. As close as it is to the mind-boggling Grand Master, enough differences ensure that the two can co-exist: the DS 003 is the more lively of the two, the Grand Master the more subtle. That said, if you can afford a Grand Master, buy it. If you cannot, the astonishing DS 003 will still blow your mind.

Sound Quality: 90%



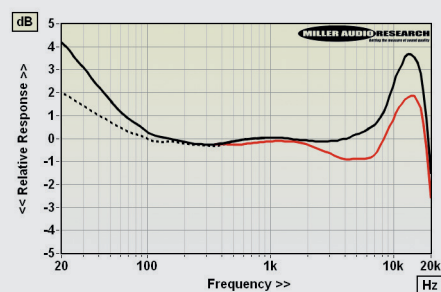
ABOVE: Alloy cantilever and fulcrum/suspension arrangement is visible here. Cartridge pins are gold-plated and usefully spaced. Power for the internal LED is supplied via green and blue pins

LAB REPORT

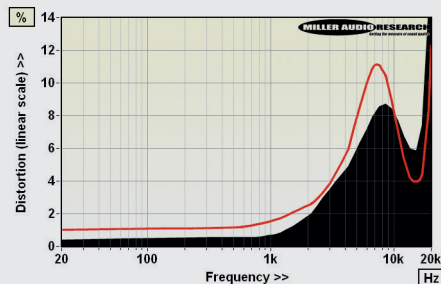
DS AUDIO DS 003

Like the DS-E1 [HFN May '19] and earlier DS 002 [HFN Jun '17], the DS 003 may employ a basic crimped alloy cantilever but its line-contact stylus has more in common with the former (Shibata) than the latter (elliptical). Its tracking performance beats both, however, not least because the downforce range has been increased from 1.6-1.8g to 2.0-2.2g in the third-generation DS 003 and Grand Master [HFN Feb '21] 'optical' pick-ups. Unlike the DS 002, the DS 003 cleared the maximum 80µm groove pitch (75µm on the right channel) and the most severe +18dB modulation (315Hz lateral cut, re. 11.2µm) at 1.7% THD.

Says Aki [see boxout, p47], 'In the 2nd generation vibration system, the distortion rate was consistent regardless of the stylus pressure, but in the 3rd generation, the distortion rate decreased when the stylus pressure was increased.' In practice distortion is slightly lower at 1.5% (DS 003) vs. 1.7% (DS 002; 1kHz/5cm/sec) but trends higher at 0.55-15% (20Hz-20kHz, -8dB re. 5cm/sec) vs. 0.45-10% for the lateral cut [see Graph 2, below]. The latter is as much a function of the DS 003's improved HF frequency response where the +7dB/12kHz peak from the DS 002 is traded here for a less aggressive +2dB (left)/+3.8dB (right) boost at a higher 14kHz [see Graph 1, below]. The symmetry between lateral [L+R, black traces] and vertical [L-R, red traces] is also excellent while the stereo separation is improved by a huge 10dB (25dB to 35dB) – both clear benefits of the 3rd gen dual optics/shading plate mechanism. Finally, as we've seen before, bass output is also boosted, reaching +4dB and +2dB/20Hz via 30Hz and 50Hz settings (first-order roll-off selected). PM



ABOVE: Frequency response curves (-8dB re. 5cm/sec) lateral (L+R, black, 30Hz cut; dashed, 50Hz cut) versus vertical (L-R, red, 30Hz cut)



ABOVE: Lateral (L+R, black infill) and vertical (L-R, red) tracing and generator distortion (2nd-4th harmonics) vs. frequency from 20Hz-20kHz (-8dB re. 5cm/sec)

HI-FI NEWS SPECIFICATIONS

Generator type/weight	Photo-optical / 7.7g
Recommended tracking force	2.0-2.2mN (2.1mN)
Sensitivity/balance (re. 5cm/sec)	940mV / 0.80dB (from Eq unit)
Compliance (vertical/lateral)	15cu / 18cu
Vertical tracking angle	25 degrees
L/R Tracking ability	75µm / 80µm
L/R Distortion (-8dB, 20Hz-20kHz)	1.2-12% / 0.55-15%
L/R Frequency resp. (20Hz-20kHz)	+2.0 to -6.0dB / +3.8 to -1.5dB
Stereo separation (1kHz / 20kHz)	35dB / 25dB