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Skyanalog REF

Is this the largest cartridge manufacturer we've never heard of? Stepping out of the OEM shadows to unveil its own-brand MCs, Skyanalog looks set to be a major disruptor
 Review: **Ken Kessler** Lab: **Paul Miller**

Two things struck me when PM said we'd be reviewing a cartridge from a new manufacturer. The first thought, from my glass-half-empty side, was: do we really need another? But the second was: this must be proof that the vinyl revival is substantial enough to warrant it. When told that the company was planning a 25th anniversary model, my curiosity about Skyanalog was truly piqued. 'New' it most certainly isn't.

Faced with a moving-coil cartridge from a source of which we've never heard, selling for £2699 amidst rivals of great familiarity and respect, with the audacious name of REF – was this chutzpah of the highest order? As it happens, this Chinese brand is somewhat understated, as is reflected in its realistic pricing.

MEET YOUR MAKER

Andy Baker of UK importer, Sound Design Distribution, explained that the company

RIGHT: Very securely bolted into its wooden display case, our REF was not supplied with a stylus guard. Cue warnings about that vulnerable sapphire cantilever...

was actually 26 years old and has been producing OEM cartridges for all that time, in numbers exceeding 50,000. Being discreet, its clients' names are protected so we can only imagine which brands are having their cartridges made and assembled in China by Skyanalog. And if they're built to the standards of this early sample of the REF, then it's easy to see why China now ranks with Japan for MC cartridge construction.

Skyanalog has been producing cartridges under its own brand name since 2019, though they're new to the UK. Skyanalog's founder, Jack Leung, came up the hard way, growing up in rural China in the 1980s with negligible



access to electronics. Collecting whatever components he could from used appliances, he is basically self-taught, taking the concept of 'DIY' to its extreme.

FROM VALVES TO CARTS

Producing his own valve amp by the age of 16, Jack engaged in formal studies at the South China University of Technology, majoring in Electronic Engineering.

After ten years as a senior telecomms engineer, he started Skyanalog, first producing valve amps for the home market before entering the OEM cartridge arena.

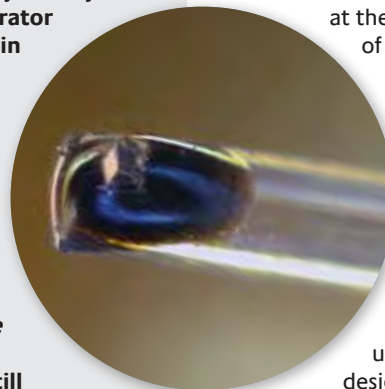
What we have in the REF is the top model – until a 25th Anniversary design with diamond

cantilever arrives later this year – of a mature family of hand-made MCs priced from £349 to the REF's £2699. They differ in body colour, styli and cantilevers – aluminium to boron to this model's sapphire – and elliptical to microridge tips,

PRECIOUS STONES

Ever since Dynavector launched its Karat Diamond and Ruby MCs [*HFN* Nov '80] and Technics used a boron pipe in its more affordable EPC-205 MM [*HFN* Dec '80 & Sep '18], exotic cantilever materials have found their place in high-end pick-up design. A fine alloy pipe remains popular in cost-effective designs where the resonance of the tube and finite mass of the crimped and glued stylus may be employed constructively to 'tune' the HF response of the generator mechanism. Ideally, though, the cantilever should not 'bend' within the audioband but remain a 'stiff' communicator of the groove modulations up to the moving coils at the other end. Diamond cantilevers are the stiffest, the gemstone's 1200GPa Young's Modulus twice that of boron (another popular choice), about 3x that of ruby or sapphire, and a full 15x that of aluminium, though it is slightly denser, increasing the cantilever's mass.

Skyanalog uses diamond in its aptly-named 'Diamond 25th Edition' flagship while the REF, reviewed here, appears to employ the same suspension, coils, magnet yoke and 5x80µm micro-ridge stylus albeit mounted onto the end of a long sapphire cantilever. A solid sapphire rod will accommodate a fine diamond stylus mounted through a laser-drilled hole but a blob of glue is still usually required to secure the dissimilar materials [see inset micrograph]. This adds to the moving (tip) mass and feeds into the sapphire rod's primary bending resonance. The latter is pushed higher than the modes in an alloy pipe, of course, but even at the top of the audioband will inevitably bring its own color to the response, distortion and sound of the pick-up [see Lab Report, p57]. **PM**





LEFT: Substantial, threaded alloy mounting plate and continuous, machined body is specific to the REF. Once again, the cantilever is very exposed but this does make for swift cueing

Paul McCartney's 1982 set *Tug Of War* [Columbia 7464-37462-1], despite the lame title track, is an exemplar of vocal textures and – as Macca is a bassist of the highest order – rich bottom octaves. For sheer mass and freedom from artifice, the lower registers could not be faulted. The virtuoso percussion on 'Take It Away', courtesy of not one but two drum gods – Ringo Starr and Steve Gadd – came across as, yes, reference level.

I was hard-pressed to think of a cartridge of similar merit at the Skyanalog REF's price point, the foundation it creates exhibiting the substance of a DS Audio optical cartridge [HFN Jan '24], if less dry. This aspect, as you've surmised, will require demonstrations through your speakers of choice, in my case DeVore O/93s [HFN Mar '23] versus myriad LS3/5As [HFN Jun '23], as each creates quite different conditions.

WONDER STUFF

Better still for me, as I obsess about vocals, were the ways distinctive voices were delivered so realistically. We are talking here about guests including Stevie Wonder ('Ebony And Ivory') and Carl Perkins ('Get It'), plus harmonies from Linda McCartney and Eric Stewart, as well as Paul himself. All five are familiar, all unique, and the interplay was damned near perfect. ☞

the latter in the REF. While this cartridge has a distinct, curved-edge shape, the other models look similar to each other with colour-coded machined alloy bodies and an overall topology that creates an upgrade path for customers to follow.

Despite the curved sides, the REF is easy to install, not least thanks to the exposed cantilever and enough clearance above the LP surface after the ideal VTA has been established. The best loading to my ears was 100ohm via my trusty EAT Petit phono stage, and also confirmed with an EAR-Yoshino PhonoBox [HFN Dec '19].

2024 has seen the introduction of Skyanalog's 'Yan' damping system. Conceived to improve consistency, the suspension is 'meticulously factory-set to a specification that guarantees balanced music reproduction'. Skyanalog says its Yan suspension/damper 'minimises distortion and loss of information' by employing a thinner tensioning spring (tie-wire) with 'optimised elasticity', calibrated for precise vibration control and superior high-frequency tracking. PM confirmed this [see Lab Report, p57], the REF behaving more like an MM of yore, from the era when tracking force was an issue and some brands targeted forces below 1g. Incredibly, in an age where 1.8g is the norm and 2.0g-2.5g no longer frightens paranoid audiophiles, the REF tracks like a dream at 1.35g.

Also part of the Yan recipe is a new rubber formula for the damper which

optimises compliance for an extended high-frequency response with, again, improved tracking at a relatively low downforce. Even with the worst 'inner groove' cuts I could find, the REF sailed through with the ease of an ADC XLM, if not quite a Shure V15-V. I was starting to think of the REF as a moving-coil for audiophiles weaned on MMs back in the day and still nervous about heavyweight MCs demanding high downforces for merely adequate tracking.

SKY'S THE LIMIT

When it comes to defining sound quality, any audiophile can easily name a dozen

areas by which a product is assessed. We tackle dynamic range, transparency, soundstage and so many more that a complete list would prove daunting.

But while a perfect component must excel in every one of them, showing absolute brilliance in just one or two makes a product noteworthy and desirable. The Skyanalog REF can boast a few.

Every great cartridge family has a standout area, eg, the late, lamented Koetsu warmth or Shure's tracking ability. While I have yet to try its lesser siblings, the REF's forte is how it impresses with the lack of artifice which made MC pick-ups so appealing a half-century ago, when the world woke up to what had actually been available since the 1950s.

'This must surely be what we're all pursuing?'



ABOVE: Long sapphire cantilever is clear to see, as are the coils on the square 'pure iron' former. The coils and magnet yoke are screened from dust, and more, behind a plastic film

CARTRIDGE

RIGHT: Well spaced and clearly colour-coded cartridge pins make for a secure connection with your headshell leads. Overall construction, and generator symmetry, is up with the very best

As *Tug Of War* is a multi-instrument affair, and I needed to focus on individual voices and instruments without distraction, I turned to LPs with solo performers on their preferred tools of the trade: Dr John with voice and piano via *Frankie And Johnny* [Sundazed LP5660] and Lightnin' Hopkins singing and playing guitar on *California Mudslide (And Earthquake)* [Modern Harmonic MH-8005].

Dr John's session, because it was recorded by the late Dean Roumanis of Mark Levinson and Krell, proved to be of true demo quality. It might be one of the finest piano-only recordings released this (or any) decade. The sound filled a space approximating just what one would expect, while Dr John's growl on the vocal cuts had all the distinct tics which render him as instantly recognisable as Dylan or Mercury.

Considering that the REF (indeed, the entire system) only had to reproduce a lone voice and piano, mono would have sufficed, but another area where Skyanalog's golden MC needs no excuses is its massive – and I mean Denon DL103-grade massive – soundstage. The delight in picturing what is as familiar as a human being at a piano, as opposed to a gigantic orchestra, with such convincing presence in one's listening room must surely be what we're all pursuing?

BOOGIE ON DOWN

This applied, too, to Lightnin' Hopkins, again with a gravelly voice, but with blues guitar twanging just so. Atmosphere? My room turned into a juke joint, minus the audience, and the way the resonances of the guitar were handled added a verve which made this 55-year-old release sound as fresh as last week.

This led to a guitar instrumental album, although with plenty of accompaniment, the sole LP from the 'lost Yardbird', Top Topham. His *Ascension Heights* [Pure Pleasure/Blue Horizon 7-63857] ranges from blues 'n' boogie to country-esque shuffle to big band excess of the Blood Sweat & Tears/Chicago variety,



but *sans* voices. Here was Duster Bennett on harmonica, an entire horn section and over it all, Topham on a semi-acoustic Gibson (not sure if it's a 335). The sound this time was so relaxed, so cossetting that it could have been an Ortofon SPU of the oldest vintage.

RED-HOT

To appreciate just how adaptable and even-handed the Skyanalog REF can be, I put on The Replacements' post-punk masterpiece, *Sorry Ma, Forgot To Take Out The Trash* [Twin Tone/Rhino R2 659038]. Here, subtlety and finesse leave the room – the bass on 'Johnny's Gonna Die' is, er, to die for. The REF delivered a wall of sound with such force – thanks in no small part to the glorious bottom end and red-hot attack – that its Janus-like duality was confirmed. This cartridge really is something else. It rocks. ☺

HI-FI NEWS VERDICT

It may be late in the game, but Skyanalog's REF is not just a magnificent moving-coil cartridge – it's also a relative bargain at a time when £10k-plus for a cartridge raises few eyebrows. I would be the last person to say £2699 is 'affordable', but in context, this cartridge is gonna rattle a few cages. If this is within your budget, add it to your list. If not, let's see what its siblings can do. Watch this space...

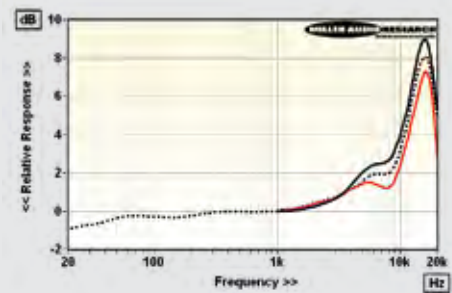
Sound Quality: 88%



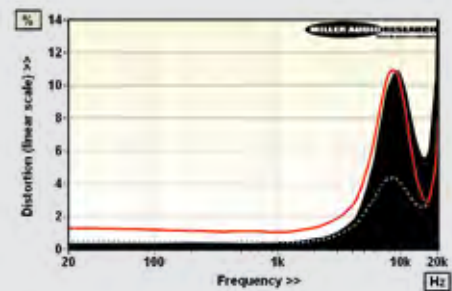
SKYANALOG REF

Despite its far-reaching OEM activities, Skyanalog is a new name for us to ponder and test, but if the REF is any indication of the range as a whole then the high-end MC scene is about to get a shot in the arm. Talking of which, the 10g REF is better suited to low/medium effective mass tonearms because its symmetrical 20cu dynamic compliance is slightly 'softer' than the specified 15cu. This makes a little more sense in the light of the REF's low 1.0-1.4g recommended tracking force range which is still sufficient for it to sail through the +15dB groove (re. 0dB at 315Hz/5cm/sec) at <0.3% THD, and navigate the top +18dB modulation at ~2.5% THD. In practice then, the REF meets its specified 70µm tracking ability on both left and right channels.

Output is a little lower than the rated 0.35mV at 304µV (re. 1kHz/5cm/sec into 100ohm), but the channel balance is superbly tight at 0.09dB and channel separation quite amazing at 35dB midband, holding on to 22dB/20kHz. The micro-ridge diamond is precisely aligned – VTA is 22° at a 1.35g downforce – and this, together with the equally precise alignment of its suspension and coils plays into the REF's near-universal *symmetry*. The latter is reflected in its L/R tracking, its tight channel balance and the absolute mirroring of response and distortion between lateral [L+R, black trace on Graphs 1 and 2] and vertical cuts [L-R, red traces]. Bandwidth is very wide but the response is bright, especially with that +9dB peak at 17kHz caused, in all likelihood, by a mode in the long sapphire cantilever [see boxout, p54]. Distortion follows suit, peaking at 10% at 8-9kHz where the 2nd harmonic is boosted by the response peak (-8dB re. 5cm/sec) but is a lower ~4% with stereo cuts [dashed grey trace, Graph 2]. PM



ABOVE: Freq. resp. curves (-8dB re. 5cm/sec) lateral (L+R, black) vs. vertical (L-R, red) vs. stereo (dashed)



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

HI-FI NEWS SPECIFICATIONS

Generator type/weight	Moving-Coil / 10g
Recommended tracking force	12.5-14mN (13.5mN)
Sensitivity/balance (re. 5cm/sec)	304µV / 0.1dB
Compliance (vertical/lateral)	20cu / 21cu
Vertical tracking angle	22 degrees
L/R Tracking ability	70µm / 70µm
L/R Distortion (-8dB, 20Hz-20kHz)	0.5-7.3% / 0.8-7.2%
L/R Frequency resp. (20Hz-20kHz)	-0.6 to +8.0dB / -0.7 to +10.5dB
Stereo separation (1kHz / 20kHz)	35dB / 22dB