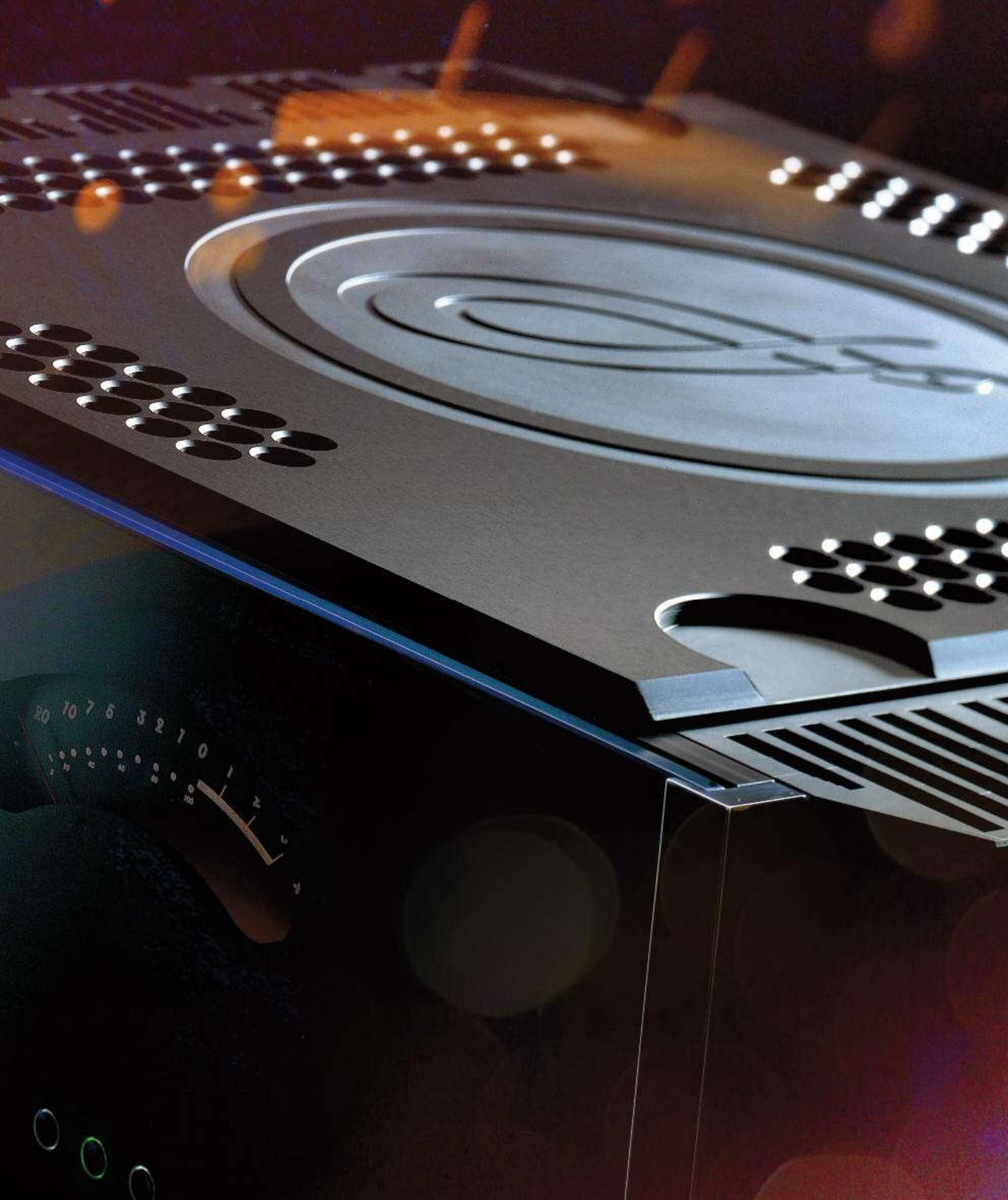


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Signature Century by Frans de Wit





Power Amplifier Frans de Wit Signature Origin Signature Century

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Goodbye yesterday

Once in a blue moon, a product appears on the high-end market that leaves all technical convention in the dust. This is undoubtedly true of the Signature Century power amplifier from the Dutch designer Frans de Wit and his company Signature Origin. So what does it sound like?

Amazement and astonishment are, at their best, two of the most beautiful emotions of which humans are capable. They tear you from your everyday consciousness and enable you to have an almost child-like direct experience. This happened to me one day a few months ago, thanks to a newly-installed amplifier, and my amazement grew with every album I played. The setup was a pair of Cessaro Wagners, fed by Jadis JA 80 power amps, and the whole system was really singing. However, there was also an amp that had been sitting around in my listening room for some time, whose sound had made a favourable impression on me at several hifi shows. On the one hand, I wanted to try out the Signature Century power amp, but on the other hand not necessarily with the Wagners - why would you hook up a pair of high-efficiency speakers to a power amp that can deliver 400 watts into 2 Ohms, and, if pushed, has the capacity to supply up to 40 amperes (and accor-



ding to the manufacturer, will be stable at any volume with any speaker)? It doesn't normally sound good when an amp is working right at its lowest level, and this is especially true of solid-state designs. I figured the fact that the Signature Century runs in Class A up to 12.5W would help a little, as well as the "non-switching technology" that ensures that the output transistors never "switch off" but continue to conduct even in the absence of a signal. Nevertheless, one would expect the usual raw, washed-out sound, low on fine dynamics, due to the (according to conventional wisdom) performance mismatch. Obviously, to be fair, the new amp from the Dutch designer Frans de Wit, hitherto completely unknown to me until the abovementioned hifi shows, would

have to wait until after the Cessaros made way for the power-hungry YG Acoustics Haileys in the listening room.

Dear reader, you know what's coming, because if you were in my shoes you'd do the same: curiosity got the better of me, and the Silent Wire Imperial speaker cables somehow found their way into the Wagner terminals. Yes, immediately after the, again, unfair swap from the well run-in Jadis JA 80s to the

Frans de Wit has, among other things, developed software for CERN – his thinking in ultra-high-end solutions is evident everywhere on his power amplifier





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box-fresh amplifier, I found that this – normally justified – prejudice was confirmed, in a way: the marimba in “Waltz” by Todos Santos (Sound Aspects SAS 019, LP) actually sounded – at first – less airy and clear in the transients. But rhythmically, wow! It immediately sounded natural and not at all like a badly-matched transistor during its running-in period. Tonally too, it was top notch, really well balanced right off the blocks. Then came a mighty cloud of sound – what a crescendo of effortless energy it developed! – I had never heard this passage sound so gripping before. Straight away I gave this a real tough test – “Ziunionei Haderech” by Esther Ofarim (Esther, EMI, HÖRZU SHZE 367, LP). The way this flows, and lends the voice its monstrous power in the loudest moments, grabs the listener, yet leaves the fundamental quality of the voice unaltered, namely allowing the intoxicating power, with all its sinewy tension, full rein, as if there were nothing easier! The voices in Harnoncourt’s earlier historic interpretation of Monteverdi’s *Il Ritorno d’Ulisse in Patria* (Telefunken SKB-T 23, 4-LP) were equally wonderful, the vibrato in “Scena II: Melanto, Eurimaco” beautiful and intense, quite an event! In particular the spatial environment, the placing of the instruments and their separation from the voices improved over time. The Signature Century’s “air supremacy” was not simply audible, but palpable as a powerful sense of spaciousness. Top marks! That was already far more than expected. And so I replayed the same challenging programme through once more, just as I did with the Wagners. When I finally reached Kammerflimmer Kollektief’s *Désarrío*, (Staubgold 136, LP) my delight was boundless: what a fantastic distinction in vertical spatiality, the space so clearly depicted that one could almost walk round it, pure sonic adventure! Can’s “Dizzy Dizzy” from their *Soon Over Babaluma* album (United Artists UAS 29673 I, LP) emphasised another significant factor: it came across so great and rhythmic, possessing an enormous dynamic drive, such that in addition to the fascinating spatial insight, it was also incredibly involving, seeming almost like a physical

attack. What started out as astonishing, considering the reasonable presumption of a mismatch (which totally failed to manifest itself) ultimately escalated into a musical experience of elemental force.

This experience made two things quite clear: firstly, I would not be in such a hurry to remove the Signature Century from my system; and secondly, that I wanted to introduce it to the readers of image hifi. For the time being however, it would have to prove itself for somewhat longer than usual. Joachim Gerhard, in his capacity as head of distribution for Suesskind Audio, rather than as respected developer, was yet to secure the German distribution for Signature Origin. And obviously I wanted to sound out the new product for a particularly sustained period. After around half a year, during which the amplifier proved itself so well that I couldn’t bear to imagine life without it, it became clear: Never before had I experienced such a collection of qualities in a solid-state amplifier, yet with no recognisable weaknesses. One of the biggest and most dangerous qualities (you become accustomed to this really quickly…) proved to be that the Signature Century appeared to vanish from the system, and in so doing, lent the music a particularly intense tangible soundstage. Time and again it was easy for me to describe which aspects of the transistor amplifier sounded better than amplifiers I was familiar with: its monstrous dynamic freedom, linear across the entire frequency range! And that includes not just the – sometimes almost shocking – moments when apparently familiar recordings suddenly sound even more dramatic than usual, but also, and perhaps in particular, the quietest, most delicate passages. Exactly those that many a sensitive listener would rather leave to valve amps. Here Frans de Wit’s power amp shows a smoothness, clarity and sharply-defined physical body of sound that escapes into the listening room in such outstanding quality that it’s virtually like being right there with the musicians. Once experienced, never forgotten.

There is one limitation, which is the flip-side of the gradually increasing amazement I experienced on

the first day of listening: the Signature Century needs a decent amount of time after switching on before it's at its best. True, it sounds very good immediately, much better than many others, which can sound pretty unpleasant when cold. But it takes a good couple of hours of operation before it reaches the point where it ceases to be an influencing factor and becomes a pure intermediary of the music, and is at its peak after 4 hours. (Note: retrospective correction: the 4 hours related to the test example I had at my disposal for most of the time. Frans de Wit has subsequently made a couple of changes to all currently available amplifiers: he now makes the line stage from six vertical circuit boards rather than placing everything on one flat board. He also added even bigger heat sinks. These changes allow a higher quiescent current, which see to it that the amp reaches "Nirvana" level after "only" 3 hours). There are two reasons for this long warm-up time: firstly, a

particularly high-resolution component reveals fine sonic detail - including where it is on the road to its ideal operating condition. Hardly grounds for criticism. Or to put it another way: if the Signature Century was not quite as good as it is, you could say it reached its full potential after only an hour. Secondly, it simply takes the amp a while until all 52 kilos of it are warmed through. I did wonder whether it wouldn't be possible to build in some kind of standby circuit. From a technical point of view that would obviously be child's play for Frans de Wit, even as a potential retrofit; these days however, there are legal reasons why it can't be done. The developer told me he'd look into the international situation.

You soon realise that there's something different about the sound of the Signature Century compared to other amplifiers. Alongside the aurally objectifiable properties, it has a certain *je ne sais quoi* that you perceive almost by-the-by. And not simply that it





sounds neither characteristic of valves or transistors. Broadly, one might call this 'something' full linearity, or perhaps effortlessness, especially noticeable with music that power amps otherwise have a tendency to stress. But there was still something else, something that I've otherwise never felt with transistors, but which became evident after the extended listening period: a kind of calm, harmonic, unruffled, smooth (but by no means 'smoothed') presentation, which all too easily beckons you to dive in and disappear into a world of sound.

Right, let's let the cat out of the bag: Frans de Wit's power amp is the first hifi amplifier on the market to be fully based on current amplification, unlike all the others which are based on voltage amplification. Whilst there are op-amps by Burr-Brown et al in so-called current conveyor technology, there are no full implementations of it in the world of hifi. Yet, according to the Dutch designer, the benefits are plain to see: his "Hyper Current Amplifier" as he calls it, could deliver more power over a wider bandwidth. Voltage amplifiers are limited in this respect, particularly in the higher frequency range (which is known to have a knock-on effect on the phase accuracy of the lower frequency spectrum). His Hyper Current technology is supposedly load-independent, thereby retaining its pro-

6500–7000 components that deserve the utmost respect from any designer: they make up the first amplifier in the history of hifi to be completely based on current feedback amplification



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perties even at particularly low impedances, and therefore able to give better control, and all this at a higher signal processing speed. I can't comment on these postulates from a technical standpoint, as there are no examples with which to compare them. Yet, aurally, it's easy to say that there must be something in his assertions. Not content with that, Hyper Current technology has yet more advantages, viz a purist 2-stage topology without excessive negative feedback. In addition, it should be immune to (in de Wit's considered opinion) the underestimated effect of back EMF from the loudspeaker on the voltage amplifying output stages of normal amps. His concept should prevent all these unwanted interactions. Ultimately, the topology fulfils another of the designer's requirements: he was forever dissatisfied that THD increases in line with frequency and that it is unfavourably distributed in solid-state devices, namely in the odd harmonics (3rd, 5th, 7th partials), which are particularly grating on the ear. He criticises the fact that it is through precisely these distortions that amplifiers gain their own "character". It is from this effect that Jean Hiraga developed the theory that each increase in harmonic reduces in amplitude by 20dB compared to its predecessor. Thus, Frans de Wit studied various psychoacoustic research and since then has always pursued a harmless distortion spectrum, preferably one based round the 2nd (even) harmonic as found in valve technology. And the distortion pattern should be as monotonic as possible, in other words, frequency independent. His Hyper Current technology is intended to fulfil all these demands. Without delving too deep into his circuitry, I found it interesting that, in order to optimise local speed, he uses not only an extraordinarily low input impedance into the second amplifier block, but also current feedback loops, a rare technique, also used by Accuphase. Somewhat higher distortion, but in a more favourable range.

Fortunately, the Dutchman was still not satisfied with his new circuit topology. During our interview, he came across as a real high-end extremist, and I constantly felt he was someone who really wanted to

create something extraordinary. You can see that just by looking at the Signature Century. Not only did he splash out on classic analogue VU-meters with adjustable backlighting; there are also some very expensive Mundorf connectors, not just the usual copper variety, but the rare silver type. Even more momentous was his desire that his amplifier should have no visible screws. This led to a complex mechanical architecture, which also happened to have the added advantage that all the assemblies are easily accessible. Even the heat sinks are serious business - before machining, the four aluminium blocks weigh some 12 kg apiece.

On the inside is where it really gets down to the nitty-gritty. The use of local current feedback loops obviously requires serious investment in the power supply. But the way de Wit goes about it here, I've never seen the like. It's pretty common in this price class to see complete dual-mono construction. That includes the two large mains transformers, weighing in at 10 kg apiece and capable of delivering over

Partnering equipment:

Turntables: TW-Acoustic Raven Black Night, Brinkmann LaGrange 2-arm/RöNt2, Nottingham Deco **Tonearms:** Acoustical Systems Axiom, ViV Rigid Float, TW-Acoustic 10.5, Nottingham Anna II, Brinkmann 12.1 **Cartridges:** Fuuga, Air Tight PC-1 Supreme, Kondo IO-M, Ortofon A95, Cadenza Mono, Soundsmith Strain Gauge, Brinkmann EMTti, London Reference **Phonostep-up transformer:** Kondo KSL-SF-Z, Ortofon ST-80 **Phonostages:** Kondo KSLM7, Gryphon Orestes **CD transport:** Jadis JD1 Pro MkII **D/A converter:** Jadis JS1 MkIV **Preamplifier:** Kondo KSLM77 **Cables:** Silent Wire Imperial, Kondo KSL-LPz, KSL-SPz2, KSL-ACz Signature **Accessories:** Hensler Cablewave NL-7 + NP-1000, Silent Wire power bar, Harmonix RF-999 MT, TU-220 MT, TU-210 ZX, MY-TU-201, Tuning Spike Base RF-900, Shakti Stones. Shelves: Thixar SMD, HRS, TimeTable, Salamander Design, Black Forest SoundBoards + SoundBridges, Shun Mook Valve Resonators, Mpingo Discs, L'Art du Son, Stylast, Audiophil Schumann Generator





2kW over several minutes. Amongst other reasons, there are 2 separate transformers rather than one huge one because it was of the utmost importance to the designer to build a completely balanced power supply, for the simple reason that he wanted to ensure there was no right or wrong orientation for the mains plug. Phase difference is inherently unimportant here. The idea of placing the fuses between the mains filter capacitors, and thereby gaining an extra filter with adjustability, is technically charming. Somewhat less than charming - as one might rather describe the rectifier construction as overkill - de Wit uses a whole 16 MOSFETS controlled by 4 Linear Technology ICs. Don't forget, we're still only at the rectifier, not the actual amplifier stage yet. Is there anything like this anywhere else? If there is, I'm not aware of it. All this crazy expense should be compensated for by the complete absence of switching noise and the amp should be totally silent running. No longer surprising then to see that the next bank has a total of 12 Nichicon caps; the many capacitors reduce the dynamic resistance.

I'm sure many would have expected to find no capacitors in the signal path in the following first stage of the amp. Cornell Dubilier mica caps in the high frequency section are nice to see. But when you then see that the first stage is powered by a DC converter, shielded in a Faraday cage and followed by a separate

Above left: The massive housing for the left and right channel's transformers protrudes from the base plate

Above right: All mains voltages on the 4-layer mains/rectifier board are contained within the shielded area inside the golden PCB track

Middle: Atop the capacitor block with the twelve 22,000µF TDK-Epcos caps, the core of the Signature Century can be seen: the "Hyper-Balanced" line stage (this is the production version with the six individual vertically-mounted boards, which are positioned to give more freedom from noise; the copper Faraday cage has been removed to aid visibility)

Below: Output stages, each with 2 NPN and PNP transistors per channel, plus one MOSFET controller - and thanks to current feedback amplification, a seemingly endless linearity and stability



Just in case: the board with the expensive silver Mundorf speaker connectors allows you to swap instantly between Speak-On, phono plug (RCA) or XLR. The yellow socket is ready for a special NOX (Non-zero crossing) speaker connection

supplementary PSU, it soon becomes clear how much effort has been made to ensure that the musical signal is protected from any possible external influences. The solid materials used in the signal path serve the same purpose of preserving the signal. 6 mm cabling and solid copper bus bars (instead of PCB tracks) are said to keep the resistance between input and output down to an extremely low 50 milliohm. This is a kind of insurance against the above-mentioned advantages of the Hyper-Current amplifier being reduced through restrictions in the current flow between the input and output terminals.

After the Signature Century had demonstrated most impressively that it lost none of its fantastic all-round qualities even at its lowest volume level, the like of which I'd never heard before, it was now time to let it flex its muscles. The Haileys from YG Acoustics present a particular challenge, because on the one hand, they possess a wonderful timbral balance and so are very revealing of discrepancies in the system. On the other hand, at elevated volume levels

they're quite capable of making even the most powerful amplifiers break into a sweat. "Three Ralphs" from DJ Shadow's latest album *The Mountain Will Fall* (Mass Appeal MSAP 0034LP, 2-LP) is the perfect test with its heavy, rumbling electronic deep bass, the brutally explosive cymbals, and the whole electronic box of tricks that DJ Shadow opens here. Actually it sounds absolutely magnificent; speaker and amplifier give each other no quarter, hammering the sound into the room with such violence, and yet with the finest of differentiation, that I really wanted to say "don't change a thing, the system is staying just as it is!"

As the YG Haileys' otherwise heavy demands seem to present the Signature Origin stereo power amp with no difficulty whatsoever, I decide to challenge the opposite end of the spectrum again: "Happy Time" from Tim Buckley's *Blue Afternoon* (Straight STS 1060, LP, USA) actually sounds somewhat distant, yet the amp fishes out so much detail from the recording that it sounds delicate and intimate. It's always one of the greatest achievements any component can attain, if it is able to look past the recording's shortcomings (or even deliberate masking) and spread everything clearly before the listener. In "Chase the Blues Away", Buckley's voice sounds completely different, close, large, and above all, at the start with a powerful dynamic pulse in the lower registers, the chest voice. That really ups the ante for the amplifier - yet for the first time I am hearing these idiosyncrasies of the recording at high volume totally clearly and unstressed, with no discernable difference to how it sounds at medium or low volume levels. This really is an unbelievable amp, and an everlasting marriage made in Heaven with the equally wonderful Haileys.

On the new direct-to-disc recording of Brahms' symphonies 1-4 by the Berlin Philharmonic under Sir Simon Rattle (BPHR160041 6LP box set) it's astounding the way the Haileys allow the string section - particularly noticeable with the cellos and basses - to spring into life with such marvelous agility, even at low volume. This is usually the preserve of more

sensitive loudspeakers and valve amplifiers. They convey realistic and precisely defined volume from the strings even from a distance and the raw, somewhat thin and transparent live recording. That is quite a feat of top-notch soundreproduction.

Finally there's just one more recording that I don't want to deprive you of, although I'm sure it won't be to everyone's taste. In 1972, Krautrock pioneers Amon Düül released the – somewhat appropriately named – Disaster album (Rocktopus 301 467, 2-LP, 1981 pressing), a live recording of wild and rousing jams. It's tonally rather awkward in places, for example at the very beginning of the first side, where the guitar on the right channel is completely overdriven and distorted. However it's a piece of cake for the Signature Century to position this occurrence in the recording studio instead of making it sound as if the whole system is losing grip. It transports you impassively to the scene and spreads the studio acoustics before you, drums and percussion really slam hard. On top of all that, on "Yeah Yeah Yeah (Zerbeatelt)" you can clearly hear a child running around between the musicians, talking and shouting when everyone lets rip.

What an incredible combination of effortlessness and transparency, finesse and violence, imperturbability and colourfulness, neutrality and subtlety! This Signature Century from Frans de Wit's firm Signature Origin breaks new technical ground and leaves all the usual stuff that hasn't changed for decades for dust. In so doing it raises the bar sound-wise. This is a boon to the solid-state amplifier market, the like of which I haven't seen for dozens of years. I just hope that Frans de Wit will build some more affordable amplifiers, so a few more people might also enjoy his creations.

Power Amplifier

Frans de Wit Signature Origin Signature Century

Inputs: Balanced XLR or asymmetric RCA (optional, also as retrofit) **Performance:**

100W/8Ω, 200W/4Ω, 400W/2Ω **Special features:** Extraordinary 2-stage pure current-conveyor topology, "Hyper Balanced", extreme stability regardless of load

Damping factor: over 160 **Power consumption:** standby: 90W; at 100W output:

430W **Maximum output current:** 40A **Dimensions (W/H/D):** 51/24.5/42 cm.

Weight: 52 kg **Price:** 49500 Euro

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