

## NAGRA CLASSIC DAC REVIEW



One of this year's personal highlights was certainly my visit to Nagra in Switzerland. To be honest, I didn't really know what to expect. I've already had a great respect for the company and products, but never really had a chance to meet the people behind the brand and see hands on the production facilities and lurk deeper into the creative process of this iconic high-end audio and pro audio manufacturer.

Well, the trip turned into one of my most rewarding and satisfying visits. I've gained even higher respect for the company and most importantly the people involved.

During the visit Matthieu Latour guided me through the complete factory and introduced me to all of the sections and employees. To say, that Nagra embraces highly skilled team would be understatement. They have some of the most creative minds under the umbrella from very different industries. And as strong assist they all serve to the common goal; Swiss like perfection and utmost dedication to the manufacturing process.

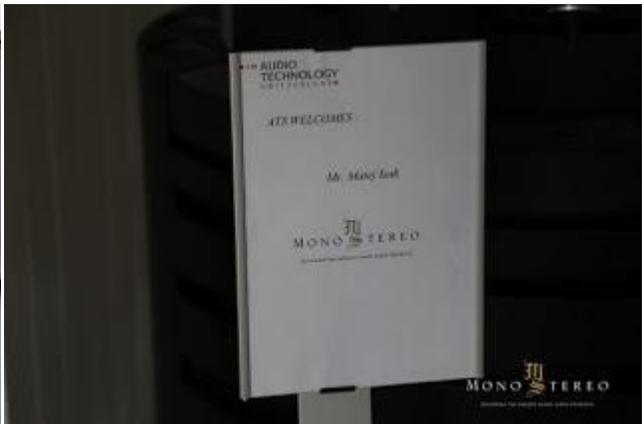
Most of my discussions and deep subject talks were shared with Matthieu Latour, Pascal Mauroux, Philippe Chambon and René Laflamme. Each distinctive in its own way with set of skills, that really puts together forward thinking minds in a very special creative bubble.

They all share same passion for the brand and clear goal to push the Nagra into 21st century. On top of this, they are all gentleman's of most friendly nature. Not something you stumble onto even after 20+ years of high-end audio experience. They gained my respect and it more felt like meeting old friends and colleagues, then conducting a business.

Nagra is no stranger to digital audio. They were one of the most recognized pro audio companies that transitioned from the analog to digital medium and explored quite few paths along the way. Where they're today, just builds up on the heritage and vast experiences from the past.



On top of that, bringing Philippe Chambon to the team opened up the doors of exotic and extreme takes. Philippe was the person, who waited me at the train station and instantly we clicked.



He's no stranger to most exotic ways, electronic parts and materials. In the narrow minded industry world where even mentioning up the foil in oil capacitors, esoteric resistors etc. would blow up most of the high-end audio engineers, for him this was a cook book and modus operandi. While spending time, driving around in Philippe's car organ music was always on. I'm yet to meet the engineer so deeply and intimately connected with the music. His love, passion for music is not only impressive, but highly contagious :). And yes, he plays the church organ!

My ear and hearth could distinguish the attributes of Philippe "invisible" signature to his creative endeavors. I could really further embrace and cherish the subtlety of Classic DAC's reproduction,

backed up with our prolonged conversations and discussion coming down to the tinniest, quark like focus points, tone resonant behavior etc. But more on that later...



## NAGRA CLASSIC DAC

Like it or not, any Nagra is a man machine. Somehow, the iconic, timeless renowned design holds its unique aura shared by high-end watches, motors, refined machines etc. But, its hold no typical tool like character, rather it recalls the refined luxury machines with the complex, electronic heart. Lurking on the inside, resolves the outer language even further with complex design, multiple (25) separate power supplies and vast amount of technical cues embraced for actual reasons and not only to show off how many parts they could stack in the case. Such over density comes as leit motif with some of the renowned high-end audio brands, where the complexity was never followed up with actual quality of the sound. Yes, even one Swiss brand comes to mind, but let us skip the naming part :).



There is so much to say about technical part of the Nagra Classic DAC and I'll try to lay the down as much as possible, but for me the most important part comes in a form of aural quality. All the grand tech fails if music is not envisioned as the carrier of the utmost important message.

Nagra Classic DAC is almost identical to the bigger, more costlier Nagra HD DAC. DAC's boards are identical, with the difference in analog stage, where Classic DAC is in absence of tube and comes with a bit more simplified output stage. Classic DAC also loses the volume control and dedicated headphone circuit/output.



As with Nagra HD DAC, Classic can benefit from the separate MPS (Multiple Power Supply). My test unit didn't arrive with that option, but included HD VFS - Vibration Free Support platform which intriguingly I've missed at the unpacking, hidden on the bottom of the box :). HD VFS offers an instant sonic difference and should go along as mandatory...

## UNPACKING

Nagra always represented something special in the high-end audio world via their heritage, impressive product portfolio, immaculate finish and non the less brand's recognition. Nagra's products reflects the aura of some of the most recognized Swiss high-end watch companies like Rolex, Patek Philippe, IWC etc... And all for the right reasons! Actually, enclosed hand gloves are the same, that comes with Patek Philippe!

Unpacking Nagra products falls into the same category as experiencing the first randevú with that particularly, special watch the you've treated yourself after long contemplation and day dreaming. You're entering the realms of pristine, Swiss engineering marveling spirit.

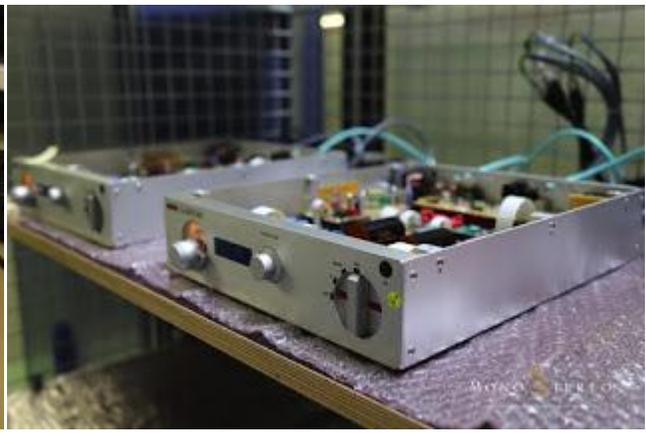


Nagra is among very few high-end companies, that always manages to impress me with their attention to details. Not only with the the refined - modular based circuit approach, renowned aluminum enclosures and timeless design, but also with the packaging. Each high end audio long term relationship starts with packaging. Sadly many high-end audio manufacturers still fails to understand this simple rule, that luxury industries embraced decades if not century ago. And with Nagra, everything points to that famous saying; you know where the money was being spent...



## PRACTICALITY

Front panel host, high quality, high resolution LCD screen where each input can be custom named. Most functions are also available via the included remote control and renowned Nagra Modulometer indicates the digital signal input level where to needles cover each left and right channel. 0 dB FS corresponds to the maximum level on the scale.



Infinite rotate, push in control knob acts as a data input controller, that when pushed and held a bit longer opens up the menu where names can be set for each input, phase reverse can be set, activation of USB power is selected and one can check the device factory info.

Classic DAC comes with remote control which manages the unit's main functions: mute, source selection and inverse phase (on/off button). Philips RC-5 communication protocol allows the use of general, multi function remote controls.



Same dimensions as the other elements in the Nagra CLASSIC range allowing for neat and aesthetic stacking in the building of a complete Nagra system from various components.

All in all, as with all Nagra products, key point is simplicity and hands on operation without unneeded complexity and easy, understandable handling. And elegance!

# INTO THE CORE

I've had a chance to listen to the Nagra HD DAC before in a controlled environment, so this gave me a good reference point regarding the Classic DAC. HD DAC was the only non ladder DAC, that managed to impress me. That should tell a lot, for a ladder DAC nut entrepreneur, who cherish the likes of MSB Technology, Totadac and Aries Cerat that's was quite a revelation.

I'm sure both HD and Classic DAC nature has to do with FPGA engine, analog stages and impressive 25 power supplies under the hood, but there's more...



Nagra Classic DAC serves any 32bit/384kHz data input via 5.6MHz up-sampling and 72-bit processing. Yes, all the incoming audio is up-sampled! Now, this might red alert some of the "purist", but as I'll describe latter on, PCM actually benefited with this principle by far. It also challenged what it's expected and usually connected with the pure PCM conversion.

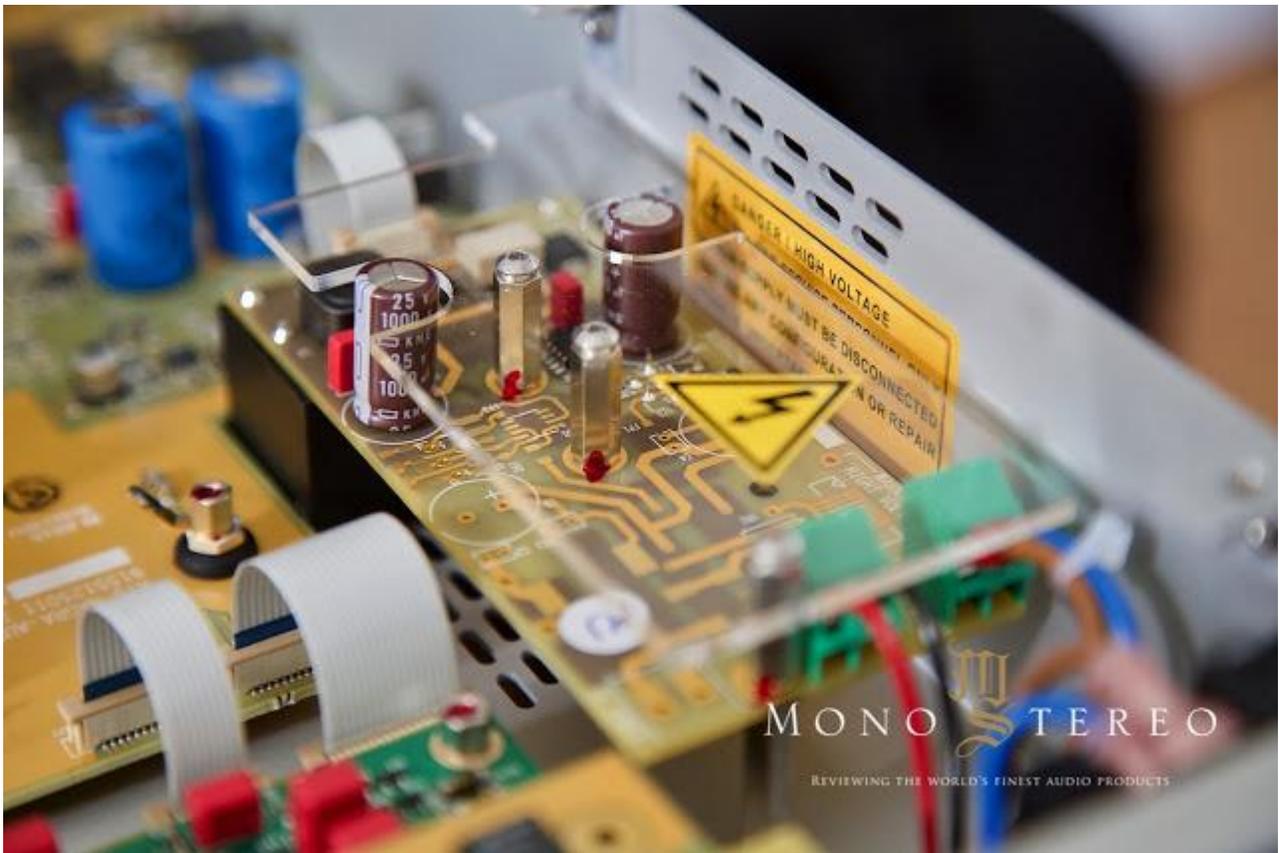
Nagra CLASSIC DAC use the double DSD encoding and with internal structure that is in absence of slope input filters in the analog section. One can hear and spot this with first track in play. Especially with acoustic music the instant stress free, natural dynamic impact resolves with the non typical harmonic richness usually associated with the ladder DAC's of much, much higher price tag.

This is also closely connected with HD DAC's tube "buffer" stage. Classic DAC replicates the HD's valve impact through the nine fets class A discrete topology emulation, sporting military grade and high end transistors, that not only reconstructs the harmonic correctness, but encapsulate the natural warm, darker nature of the music. Further on output stage produces whooping 145 dB signal-to-noise ratio that pushes the competition to the very nervous corner.

## IN THE HEART OF MATTER

In high end audio we tend to escape the egalitarian sound. As audiophiles and music lovers we're striving for perennial experience rather than fake, short interval felicitations.

Nagra went out of the box and tried to rethink the approach to digital to analogue conversion by exploring the digital audio potency at the redbook and streaming level. This translates to adding the additional value and importance to the current formats as well as being future proof.



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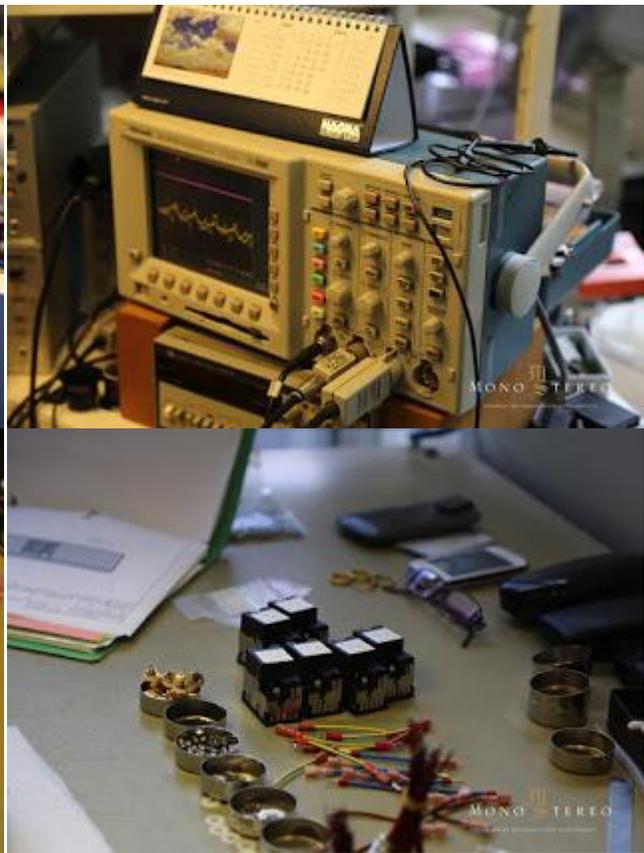
When this is done properly and as evident with Nagra Classic DAC, the proper rendition of space correlating to the reverb, delay and finer focus points that are of utmost importance with the recreation of acoustical space, the up-sampling to DSD steps forward. Same rules applies to harsh sibilances of vocals and brittle metallic percussions sounds, that are usually connected with lower file formats. Yes, its always depending on the actual mastering, but still there is an underlying treat that portrays this more as an standard rule.



By DSD processing there is a markable step up in the the way the music is perceived and comes closer to the positive attributes of high resolution files where the curtains are being spread wide open, the misty masking is removed and details comes forward.

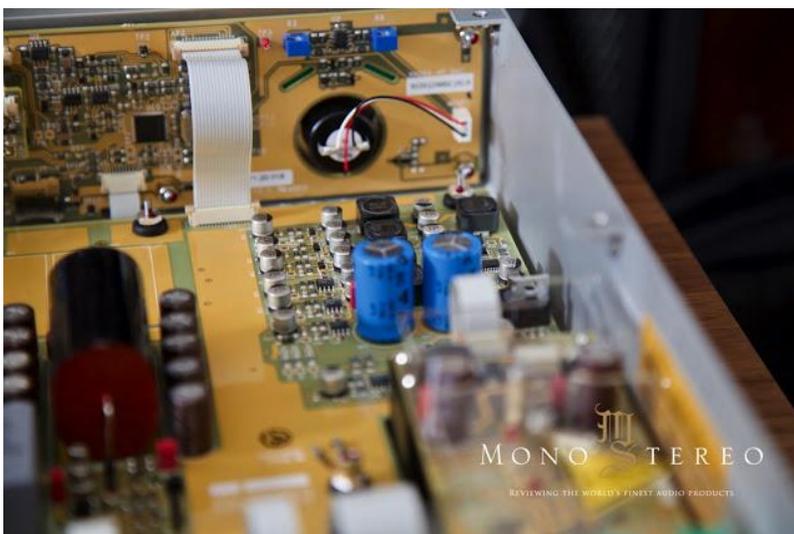


Here again, the transparency comes into play. I'm not referring to artificial, obtrusive one, but to the open nature of the music and this is where Nagra's team headed with stepping above standard oversampling standards.



They've closely researched the work of Andreas Koch the co-inventor of the DSD. As known, the DSD format is based around single bit encoding at an extremely high sampling rate - 2.82 MHz. This elevates it to 64 times above red book. While DSD brought few interesting sonic key points and pushed sound closer to the analogue, the inherited problems of the proximity of quantization noise to the audible bandwidth remained non perfectly solved and filters still came as mandatory at the output of the digital stage.

Nagra decided to work jointly with Andreas Koch, which resulted in entirely original module, based on Sigma Delta conversion technology. Particular module ensured better sonic via genuinely monobit stream and doubled DSD frequency operating at 5.64 MHz.



As result, quantization noise was pushed beyond 80 kHz where low-pass filters at the output stage leaves no audible imprint.

But, that was just one part of the challenge. Nagra has chosen 100% ultra-low noise selected and avoided standard DSD chip with the implementation of FPGA (Field Programmable Gate Arrays) circuit specially programmed for Nagra.

Accuracy of the clocks and the absence of temporal drift and jitter as well as ultra high performance time correction algorithm was especially developed for this project.

As mentioned before, Nagra's HD DAC converter performs its calculations in 72 bits and produces an impulse response being so fast that can actually avoid the pre-ringing phenomena usually connected with digital audio and something that vividly translates to digital hubris known as digititis.



Such speeds opened up the doors for lighting fast transients that are core of the musical dynamic impact. Most importantly quantization noise being pushed at the frequencies beyond the audible range no longer needed usual slope filters.

Sheer complexity of the Nagra Classic DAC doesn't end here. All the digital inputs are carefully filtered before being entering a multiplexer circuit via balanced signals. The XLR, BNC and RCA digital inputs have all their individual insulating transformers, that adapts to impedance and level. The Toslink optical input, that is usually limited 96 kHz offers ensures an ultra high-speed connection up to 192 kHz.



What about the USB input, that's mostly used? Dedicated high speed USB input was developed around the bit perfect circuit, specially programmed for Nagra by the Italian firm Amanero Technologies.

Nagra has created the hardware part with an optimization of the power supply (filtering and stability) and the clock which is equipped with a high quality VCXO oscillator (Voltage-Controlled Crystal Oscillator), synchronized with the unit's mother-clock.

I know... A lot to digest from technical point, but its worthy and needed to establish the ground for what its coming in the next installment- the musical impact. All the tech is of little value without actual performance, that can evoke the sense of musical fulfilling and emotional impact...

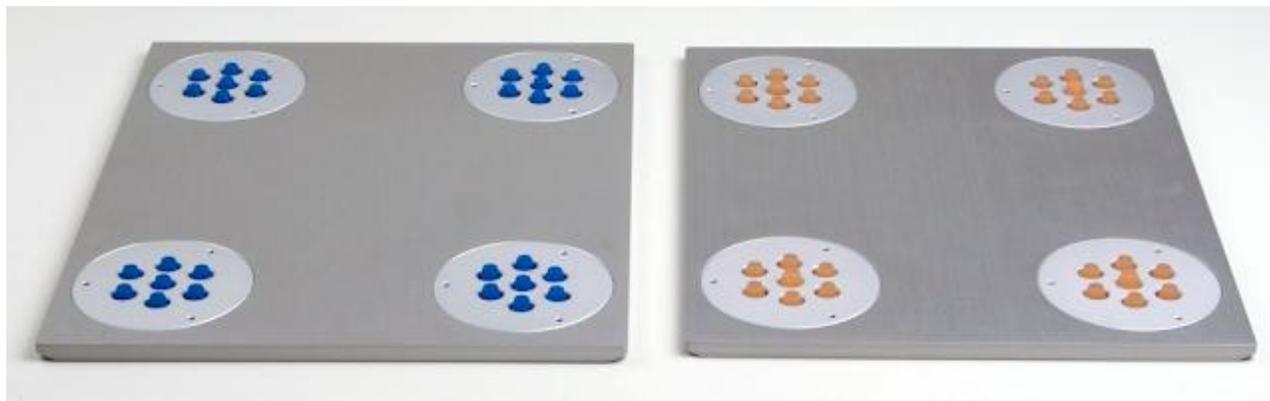


## VFS L - VIBRATION FREE SYSTEM

It would be to grand left out if I didn't mention VFS L - Nagra Vibration Free System. VFS L is a larger



system that consist of two base plates, that are placed one above the other and was designed to fit under HD DAC, CLASSIC DAC, CLASSIC AMP and CLASSIC INT - Integrated amplifier.



VFS L was designed to address the mechanical vibrations and deal with the unwanted effects of micro vibrations and micro resonances.

And the effect? This is really no brainer. The difference was instant and the result reminded me of the photo camera stabilisation. Everything became more focused and there was more than just noticeable difference with both micro and macro dynamics. VFS L also compliments the Classic DAC design with the perfect fit and with the same iconic Nagra aesthetics.

## MUSIC

I've gone through my usual arsenal of acoustical music, classical repertoire and playlists of highly demanding and familiar tracks with Nagra Classic DAC. Here are two references, that vividly points towards the Classic DAC inner ability to render music in a profound and captivating way.

### ***Kenny Burrell - Midnight Blue***



Midnight Blue is among my favourite guitar albums for many of reasons. There is some unchained purity within Kenny Burrell playing, that goes beyond simplification of tone and phrasing. His playing and album carries similar aura of the Joe Pass' timeless album -- Virtuoso. In fact, for me, The Midnight Blue goes even beyond.

I can always enjoy this album in one take, but when the tracks are progressing to the Soul Lament it goes off the charts. This is one of the most intimate jazz guitar recordings and it calls for an indispensable DAC's core with ability to limn the lyrical nature of this particular song with fullest scope. Nagra Classic DAC has enamoured the gist of Soul Lament with a surprising ease, that is never associated with the DACs in this price range. Classic DAC had managed to resonate with very heart and on the level where emotional burst was instantly conflagrated.

Classic had no problem with conveying of the overtones eruption, yielding the tone spot on or with portraying the spatial distinctions. Classic DAC had nailed the essence with refreshing, surprising and inspiring impact and in absence of digititis, that even DACs few times the price are dealing with...

### ***Lekverk - Everyday***

Not a typical album for a review, but among favourite when it comes to the role of "stressing" out the



upper echelon DACs. The sheer momentum of this album literary grabs the DAC's guts and call for the very last bit of the sonic potency.

To often with the high end audio products or system we're forgetting about the path bounding ability of pure energy transference. We cannot talk merely about the audio effectiveness. Its all about the transitoning of the energy without vigorous imprint in the sound. Within digital signal and audio world there are more complex tasks in action with channelizing audio nucleuses in fullest muscularity.

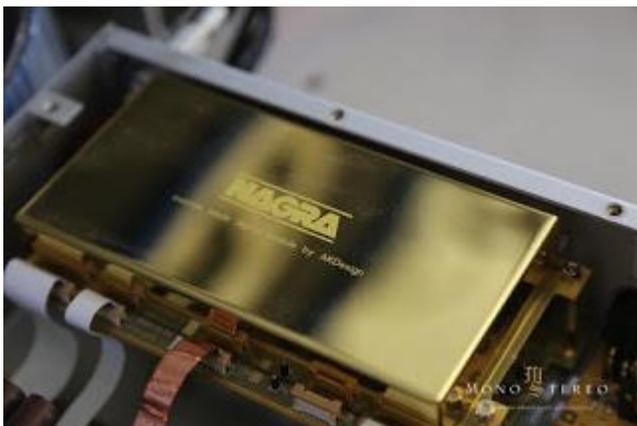
In the present, highly demanding era any high end audio DAC needs to dig deeper and perform within much more subtle universes. The primary task calls for uninterrupted digital signal transfer right from the source. The next, perhaps even more challenging part is decoding ones and zeros into a credible analog informations, that can reconstruct the composite nature of the music. Spatial and spectral cues need not only the utmost density, but also great exactitude.

Nagra Classic DAC had revealed the manifold intelligence, where Lekverk music was emitted with the sense of authority, that couldn't happened as a result of serendipity. Nagra team did their job more then just right!

When music ascends throughout the multitude of electronic parts, there are certain choices to be made. This is where on top of the proper technical execution the voicing part comes in. I've seen the prototypes and current arrays of Nagra products at my visit in their dedicated listening room and I can assure you how the whole team take up the voicing part more then just seriously. For them the auditing, evaluating and fine tuning represent a constitutional part of the creational process and it reflects in the way how music is conveyed throughout their electronics.

Lekverk revealed Nagra Classical DAC's power to perform above conventional digital shortcomings and DAC has locked easily with the syncopated phrases without loosing a pace. Both energy momentum and sense of atmosphere were rendered with a sheer physical capacity and competence.

Nagra Classic DAC stepped boldly into the realms of interactive mirroring of spectral shading of the acoustical space. Its never easy to evoke the remote sensing of the aural landscapes, but Classic DAC had ensured enough spectral cues, that enlivened the chaotic sonic scape of Lekverk with lingering impingement. Quite a remarkable capability especially at its given price.



## SUM UP

Can a Swiss precision and elegance also embrace the very core of musical nature? Nagra Classic DAC surely is a stand out representative of such combined efforts, rivalling not only abroad competition,

but quite few of the domestic and renowned DAC's.

For not being the biggest fan of Delta Sigma based DAC's, the Nagra Classic DAC comes as a surprise. Even first few tracks revealed a very different narrative. Why so? All become logical when one dives into the technical side and aspect of the Classic DAC written in the previous review sections above. This was not rushed, cashing in project, but well thought out, in depth research and quest for something worthy of Nagra's name.

Classic DAC comes as a trickled down little brother of Nagra HD DAC, but with impressive big portion of HD's DNA. Digital heart is the same and ensures the sound, that is not so far fetch from the HD at almost half the price. Its actually quite an achievement more then worthy of pointing out and highlighting.



It's said, that you should never judge the book by the cover. Same goes for the size or multiple boxing of the products. Sometimes the very right and potent objects d'art can be sculptured within reasonable, down to earth sized chassis without sacrificing the essentials. Nagra Classic DAC is a perfect example of such high end audio tricking down done right. Classic DAC embrace both technical heart and the complex mind with a sound, that Hoover beyond the usual audiophile norms. It addresses all the technical attributes needed to convince the technical mindsets, but more importantly cuts through the layers of sound with a unique unmasking ability and refreshing ease.



I've had pleasure to meet the Nagra design team and the amount of work, R & D as well as level of dedication goes beyond what's would be generally expected from the brand of such iconic status. Nagra operates with a unique inner gestalt, that is surpassing the usual rules of the game. New management team expertly ascent the company to the state where inner workings reflects the esoteric inner core of an exotic, ultra high end audio venture, but goes further and surpass such most often one man (or small scale) operation with an un-matching heritage, technological know how (coming from different industries) that is directly supported with an instant and hands on in-house machinery.

Nagra Classic DAC represent the new wave of Nagra oriented products, that're leading this iconic Swiss

high end audio brand into the 21st century, where the art of technology is seamlessly blended with the art of musical reproduction!

For what is represent and the way it can connect one with the music, I'm whole heartedly awarding the Nagra Classic DAC with Mono and Stereo Highly Recommended Award.

**Text: Matej Isak**

**PRICE 12.500 EUR**

## TECHNICAL

### Electronics

Internal processing: 5.6 MHz / 6.2 MHz 72 bits

Compatible digital formats: PCM 24 bits up to 384 kHz, DXD, DSD x 2

Frequency response: 10Hz to 110 kHz (+0.1 / -3 dB)

Crosstalk: > 100 dB

Interchannel phase: <0.5° @ 20 kHz p>

Noise level: -128 dB (linear)

Distortion: < 0.02% (at -20dB FS)

### Connections

*Inputs: 2 x S/DIF, 1 AES/EBU, 1 Optical, 1 Audio USB (mode 2)*

*Analog outputs: 1 stereo on RCA connectors, 1 stereo XLR (Unbalanced)*

### General

*Dimensions: 280 x 350 x 76mm (12 x 13.7 x 3 inches)*

*Weight: 3.8 Kg (6.6 lbs)*

*Power consumption: On 15 W, Standby <1w i>*

### ACCESORIES

*HD VFS: Vibration Free Support*

*MPS: Multiple Power Supply*

*ACPS II : Single power supply*

## CONTACT

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