

PRESS RELEASE

NAGRA HD PREAMP AS CES 2018 INNOVATION AWARDS HONOREE

Las Vegas, NV, 09 January, 2018 – Audio Technology Switzerland today announced that it has been named a CES 2018 Innovation Awards Honoree for the Nagra HD PREAMP. The products entered in this prestigious program are judged by a preeminent panel of independent industrial designers, independent engineers and members of the trade media to honor outstanding design and engineering in cutting edge consumer electronics products across 28 product categories.



Twenty years after the Nagra PL-P preamplifier was released on the high-end market, Audio Technology Switzerland introduced his new Nagra HD PREAMP. It has been created as a perfect partner for the Nagra HD DAC and the Nagra HD AMP. In many respects, the HD PREAMP project started from a blank page. The philosophy of the design is nothing but the same as the HD DAC plus some very unusual features. Every aspect and step in the design process involved research to find the most elegant solution to accurately and faithfully convey the music from the source to the amplifier. As a result, the HD PREAMP - also a tube design - includes several patent-pending technologies that take the music listening experience to new heights.

As a tribute to legendary Nagra II recorder and Nagra PL-P preamplifier, the HD PREAMP features the mythical modulometer, a custom-made measurement unit that differs from traditional Vu-meter, as modulometers are faster and more accurate.

Nagra's unique approach to designing audio products draws on 65 years of experience in the field, a large and skilled R&D group as well as extensive listening sessions. This frequently results in a very organic and natural sound. The audio circuit topology of the HD PREAMP is fully analogue, tube based, dual mono, without any kind of negative feedback anywhere along the signal path, and it has a separate power supply featuring Super Cap capacitors.

While a selected N.O.S triode input stage takes care of current amplification and impedance matching, the voltage amplification is passively done with high-end shielded toroidal audio transformers whose voltage ratio is variable and digitally controlled (Nagra patent application) on a 0,5 dB step basis. They are designed and made in-house in our factory in Romanel - on Lake Léman shore. The variation of voltage ratio is done switching the multiple windings of the transformers. Multiple aerospace quality-hermetically sealed- relays are used for that purpose while an alternate volume control circuit bypasses the transformers while their windings are being switched in order not to hear any kind of switching noise.

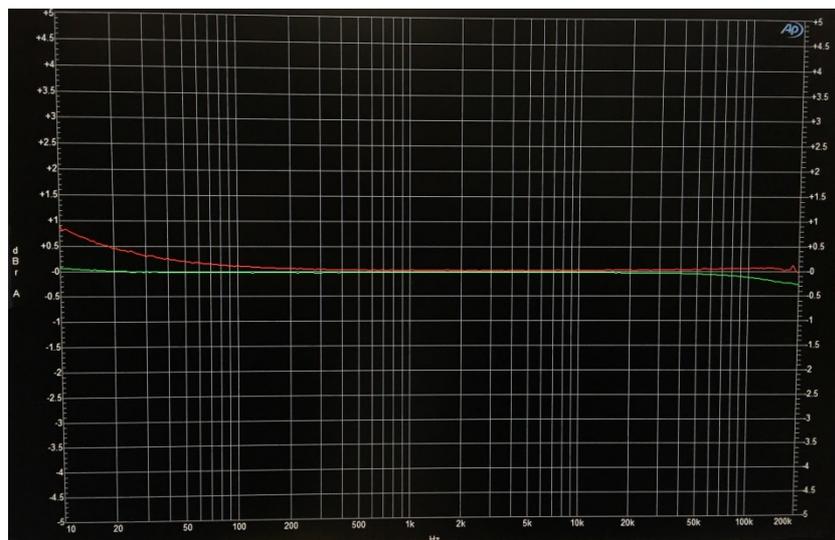


With this simple but revolutionary technique, the audio signal remains intact after the voltage-current conversion through the transformer. The transfer of energy is close to ideal. It is not the case with any other resistor-based volume control because part of the signal is turned into heat through the attenuating resistance. The volume control of the left and the right channels are synchronized thus turning one button makes the other button move the same way. They can be turned separately to adjust the balance if necessary then they will move together keeping the balance adjustment. Moreover the signal output of the HD PREAMP is floating across the audio transformer avoiding ground loops with the power amplifier, and its impedance is extremely low.

Outstanding quality components are used all around, some of them custom made upon strict specifications for Nagra. The NOS - new old stock-triodes and the volume control transformers are shielded with an annealed Mu-metal screen for a perfect insulation to electric and magnetic interferences.

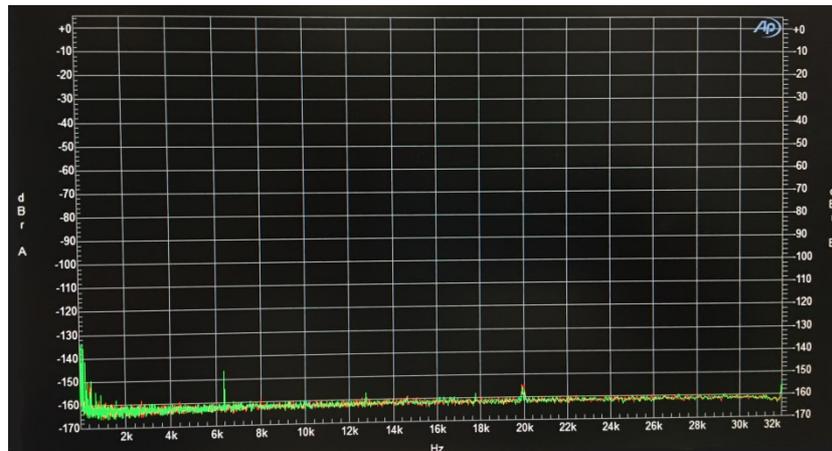
The sophisticated power supply is located in a separate chassis. A massive toroidal transformer is providing all the secondary voltages for regulated filament heating, controls and tube regulated high voltage power supply. Like the audio circuit, it uses ultra-high quality components that are specified for extreme applications. Just as the PL-P made use of batteries to isolate the unit from external interferences, the HD PREAMP power supply uses a unique virtual battery technology - built around super-caps - that provides superior results compared to a conventional battery without the inconvenience of dealing with charging time and battery life.

Getting such high quality amplification required so many efforts that it would have been a complete non-sense to spoil it with clumsy or inappropriate choices. Therefore an extreme attention has been paid to all the details that could have jeopardized the perfectness of the HD PREAMP. These resulting measured performances speak for themselves with an amazingly linear bandwidth (green curve) and an almost perfect phase response (red curve) from less than 10 Hz up to more than 200 kHz (-0.25 dB at 200 k Hz).



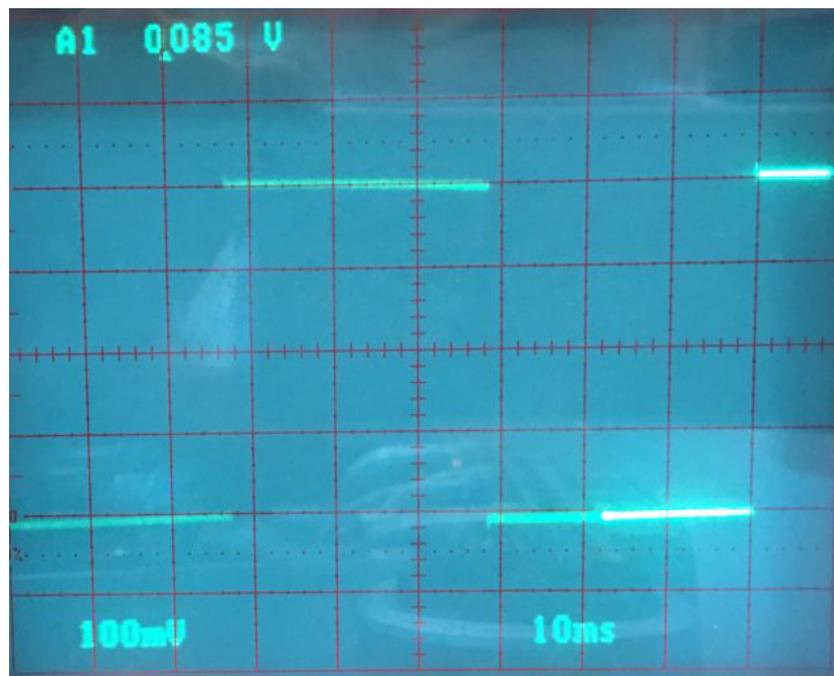
Nagra HD PREAMP bandwidth and phase response

This guarantees a perfect audible harmonic declination all along the audio range so that the sound reproduction sounds extremely realistic. The noise floor level at the HD PREAMP output reaches uncharted territories whatever the technology of the circuit. It is the lowest ever measured on a Nagra product and probably almost any preamplifier in the market.



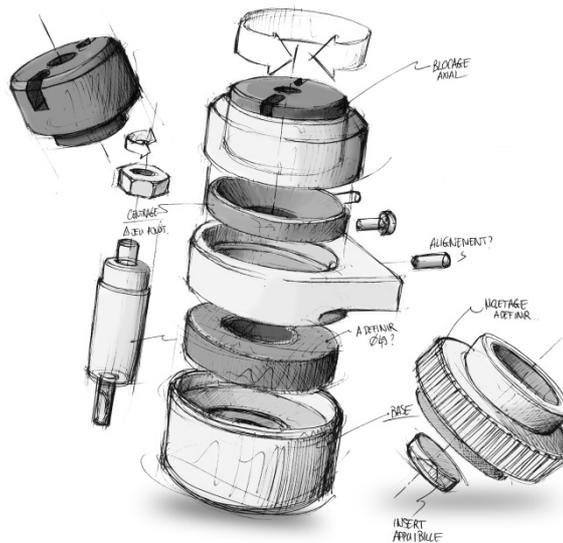
Nagra HD PREAMP noise floor

The high energy power supply has a huge responsibility in both the transient response of the HD PREAMP therefore in its very wide frequency response. By the way, the technical solutions involving super-caps smoothing and energy storage lead to the exceptional square wave response of the HD PREAMP. The picture here after shows the behaviour of the HD PREAMP to a 16 Hz square wave signal.



Nagra HD PREAMP 16 Hz square wave reproduction

The two chassis of the HD PREAMP are made of brushed aluminium and all the parts are CNC machined in Switzerland by long-time and trusted suppliers. The brand new design chassis uses four anti-vibration isolation feet that mechanically separate and isolate the audio chassis from the power supply chassis. They are connected to each other via a custom made composite tray made of aluminium and phenolic material, totally free of resonances.



This specific construction ensures that both audio and power supply units are free from the influence of external vibrational disturbances while it drastically reduces mechanical resonances.

As a result, the HD PREAMP promises to set new standards for preamplification as did the PL-P twenty years ago.



About CES Innovation Awards

The prestigious CES Innovation Awards are sponsored by the Consumer Technology Association (CTA)[™], the owner and producer of CES 2018, the global gathering place for all who thrive on the business of consumer technologies, and have been recognizing achievements in product design and engineering since 1976.

Nagra HD PREAMP by AUDIO TECHNOLOGY SWITZERLAND, Switzerland, will be displayed at CES 2018 at the Venetian Hotel, room 29-210, which runs January 9-12, 2018, in Las Vegas, Nevada. A selection of Honorees will also be displayed at CES Unveiled New York, which features dozens of exhibitors and networking opportunities and runs 3:00-7:30 PM November 9 at the Metropolitan Pavilion in New York.

Entries are evaluated on their engineering, aesthetic and design qualities, intended use/function and user value, unique/novel features present and how the design and innovation of the product directly compares to other products in the marketplace.

Products chosen as CES Innovation Honorees reflect innovative design and engineering in some of the most cutting edge tech products and services coming to market.

CES 2018 Innovation Honoree products are featured on CES.tech/Innovation, which lists product categories, as well as each product name, manufacturer information, description, photo and URL.

About AUDIO TECHNOLOGY SWITZERLAND - Audio Technology Switzerland

Founded in 1951 by Stefan Kudelski, NAGRA has designed some of the most influential equipment in the audio industry. From the Oscar ® Awards-winning NAGRA professional tape recorders to the internationally recognized NAGRA HD electronics, the company has continuously perpetuated the utmost excellence in electronics design and manufacturing. In 2012, Audio Technology Switzerland S.A., formerly Nagra Audio division, was created. Still largely owned by the Kudelski family, Audio Technology Switzerland designs, manufactures and markets NAGRA professional, high-end audio and security products. It continues the tradition of sophistication and originality that has established the prestige of the NAGRA brand all around the world for over 60 years.

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