



PRESS RELEASE

Naim updates its classic power amplifiers with DR power supplies and NA009 transistors

Following the development of Naim's now reference Statement amplifier Naim has re-engineered its complete range of classic amplifiers, 'trickling down' the Statement high power DR regulator technology and NA009 output transistors.



Munich High End Show 14 May 2015. Naim today confirmed that it would be shipping improved versions of its classic power amplifiers from June.

It is perhaps no surprise that Naim would add its DR technology to the classic power amps with regulated power supplies. Naim has never underestimated the importance of power supplies and the huge performance gains obtained during the Statement development were just waiting to be transferred.

The NA009 power transistor delivers further advantages in material properties, thermal stability and die matching together with being a higher power device. In addition to these two new technologies

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the circuit boards have been revised and relayed out. This, together with improved transistor mounting and heat-sinking, has delivered substantial gains in performance.

Upgrading, availability and pricing

Existing owners of triptych or new look cased NAP 250, NAP 300 and NAP 500 power amplifiers will be able to have their amps updated to the new specification starting in late 2015 to early 2016. Prices for these upgrades will be announced later this year.

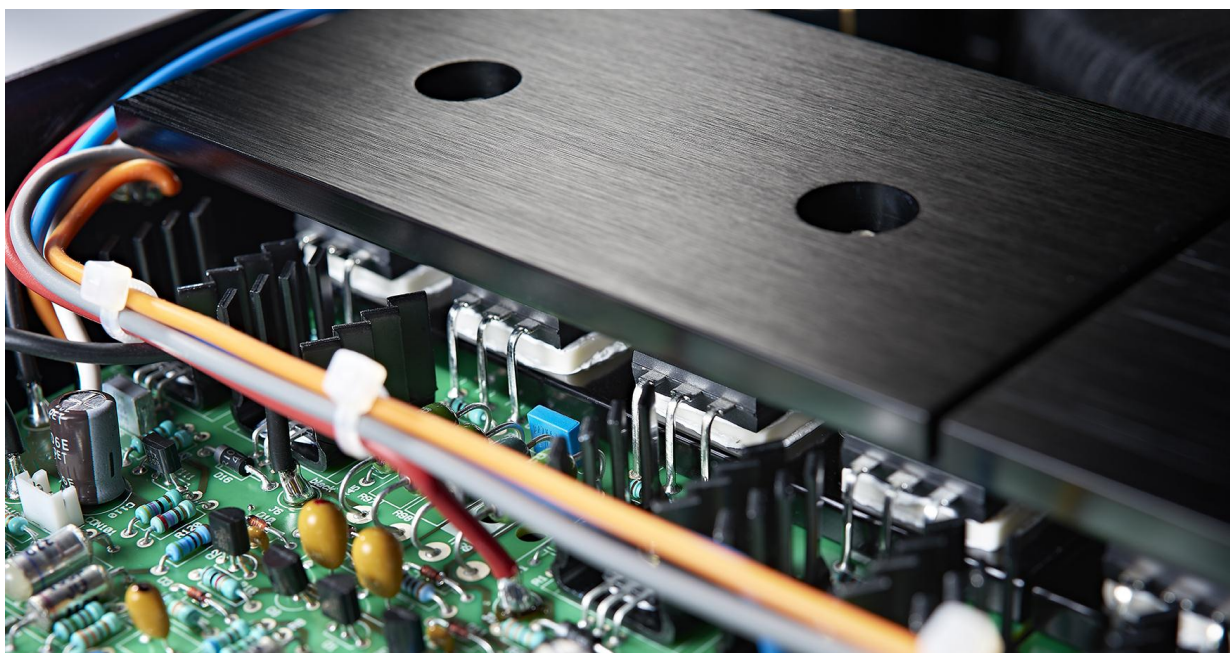
There will be small price increases for the classic amps reflecting the increased cost of production. The NAP 500 will enter production slightly later than the rest of the range in August. Prices listed below are excluding VAT.

NAP 200 DR	£1662.50 ex VAT
NAP 250 DR	£2912.50 ex VAT
NAP 300 DR	£6079.17 ex VAT
NAP 500 DR	£16250.00 ex VAT

Technical Background

Naim DR (Discrete Regulator) Technology

A regulator can be thought of as power amplifier that has a DC reference as an input signal instead of an audio signal. The amplifier will then amplify the reference signal to give the required voltage needed for the circuits. The quieter the reference, the quieter the regulated voltage. The better the amplifier the better the regulator will cope with dynamic power demands. Put these two together and you have a DR regulator.



Above: the new NA009 transistors and DR circuitry in the NAP 250 DR

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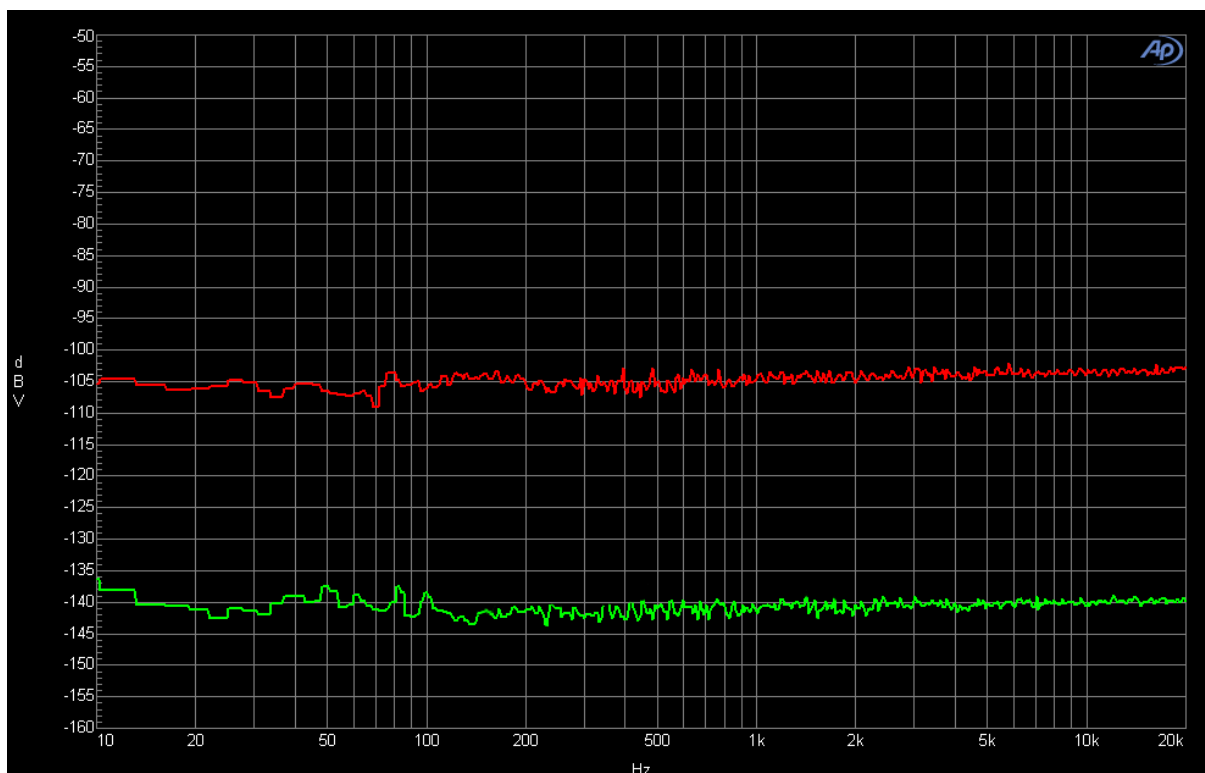
The DR regulator uses a sub-surface zener diode as a reference voltage. This is the quietest discrete voltage reference available. It can be thought of as a zener diode that has a passivation or protective layer over its surface. This prevents contamination and ensures low noise during avalanche mode.

This special diode also has incredibly tight voltage tolerance with age and temperature.

The DR not only uses the quietest discrete reference but it powers the reference diode from its own quiet output. This is achieved using a special technique called bootstrapping. The bootstrap technique is extended for the entire front end of the regulator. This allows Naim to the make DR regulators quiet and compact so they can be used then in more and more places.

30x Quieter

The new DR power supply is 30x quieter than the current power supply and has been engineered into the NAP 250, NAP 300 and NAP 500 which run entirely from linear regulated power supplies. They also have separate PSUs for each channel. The DR supply is not only quieter but has a lower dynamic impedance. This means as the speaker takes current the power supply remains very constant.



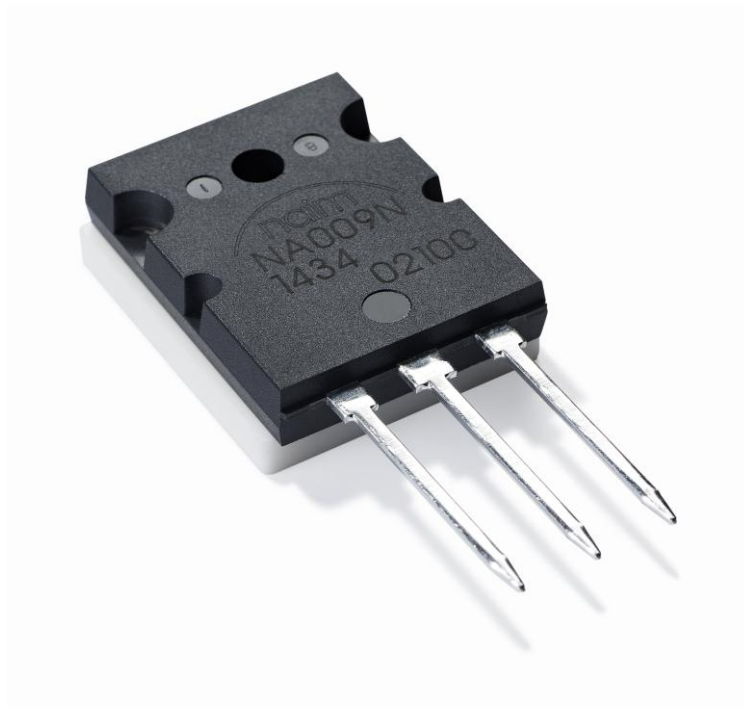
Above: internal power supply noise of the NAP 250 DR (Green) is approximately 30 times quieter than the original NAP 250 (Red)



NA009 Transistor

The NA009 power transistors were developed especially for the Statement power amplifier. It took Naim on a year long journey investigating many disciplines including materials used to construct the transistor, thermal dynamics and die matching techniques.

Each NA009 is serial numbered and fully parameterised in the transistor manufacturer's temperature controlled clean room. From the serial number we know the exact silicon wafer the die was made allowing us to use adjacent die matching. These advantages can be confirmed by the measured and listening test results.



Above: the NA009 transistor mounted on ceramic heatsink

Mechanical Advantages

One often over looked phenomenon of power amplifier design is the generation of vibrations through the PCB caused by parallel conductors. These vibrations then in turn travel through the PCB, at the speed of sound, back into the sensitive amplifier gain stage. This phenomenon can be evident in power transistors where the high collector and emitter currents run parallel. With each large pulse of speaker current the two legs repel each other. By using non-ferrous materials this effect can be dramatically reduced. The NA009 uses no ferrous materials including the legs and internal bond wires.

ALO Ceramics

The Statement amplifier uses aluminium oxide ceramics (ALO) to thermally couple and electrically

isolate the power transistors to the heatsink. This has two benefits to improve performance. One is excellent thermal transfer and the other is lower stray capacitance of the transistor to the heatsink. The tight thermal coupling not only keeps the transistors die cooler but also reduces the dynamic thermal effects and bias modulation. The stray or unwanted capacitance can be thought of as a gateway for noise to either enter or exit between the chassis and amplifier circuit. The ceramic lowers this stray capacitance by a factor of nine.

NAP 200 DR

The NAP 200 differs from the rest of the range as it does not use the new NA009 transistors. It also does not use regulated rails for the power amplifier section. It does however provide power to the attached preamplifier. This power supply is now upgraded to a DR module identical that can be found in the Hi-cap. Now the pre-amplifier will enjoy the low noise benefits without using an external DR power supply.

To download high-resolution images please visit:

<http://resources.naimaudio.com/?c=1276&k=ebb97a5704>

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About Naim

Founded in 1973, Naim is an award-winning hi-fi manufacturer based in Wiltshire, UK. With a history rooted in engineering and design excellence, Naim has won the prestigious Queen's Award for Enterprise on three occasions, most recently for its ground-breaking design of digital music systems in 2014.

Naim shares the same intense relationship with music as its customers, a passion that has driven them to design and engineer hi-fi products including digital music systems, amplifiers and loudspeakers that connect people with their music. For Naim, music always comes first. Every product is the subject of intense scrutiny from a team of engineers who spend months in the listening room perfecting designs, never content until the music speaks to their hearts and souls as well as their heads.

Naim maintains an exclusive partnership with Bentley Motors - the Naim for Bentley premium audio system is available as an optional extra on all Bentley models – and Naim is an official sponsor of Team M-Sport Bentley for the 2014 GT3 season.

Naim also has its own independent record label. Championing the technical as well as the artistic, Naim Label places great emphasis on sound quality and the recording process. NaimLabel.com was one of the first high-definition download sites to launch in the world, offering music in better than CD, super hi-def quality from artists across three sub-labels: Naim Edge, Naim Jazz and Naim Classical.

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