



"THE INTERNAL RESONANCE WAS ... TRICKY"

You never get a second chance to make a first impression. The development teams working on the first Neumann headphones were aware of this. Very much so.

Do they now sound "boring" and "unspectacular" or are they the new reference standard for monitoring and mixing?

Following their market launch in January 2019, the first set of headphones from Neumann has been tested by the world's most critical ears.

What they heard is very closely linked to the monitors' evolution.

It's hardly surprising that it took a little while.

Markus Wolff is sitting in Neumann's demo room. Here, guests are able to hear how Neumann defines reference sound for the KH monitor systems.

It's hardly surprising that sound absorption areas – in the shape of a pyramid – have even been installed under the tables. No sound wave shall move through the air uncontrolled here. Wolff raises his eyebrows, because controlled sound movements were, put simply, a major issue when developing the NDH 20: "Planning closed headphones which deal properly with internal resonance is definitely a challenging task. You then hear nothing from outside anymore, are shielded effectively – but inside, in front of your inner ear, the sound waves easily build up into something ..." – the technical coordinator makes a face – "that you really don't want."

Developing closed headphones which fulfill maximum monitoring expectations is tiring. Tiring for around 6 to 7 years. The first Neumann headphones took years to develop. "We don't do things by halves", the developers concede in retrospect.

Its sound is not designed to, should not, must not, sound nice. Just in the way that light should not be "cozy" or "pleasant" for surgeons, but rather be as bright as day and undimmed across the whole spectrum. Markus Wolff and Sebastian Schmitz smile at the comparison. "These headphones were indeed close to all our hearts, so you could call it open-heart surgery. Whether sales, development or design: everyone wanted everything to be right. Everything should fit with that which Neumann stands for, with microphones on the input side, and with the KH monitor series on the output side."

Mobile or flexible working is becoming a reality for more and more people. The costs of developing spaces of high acoustic quality are not always justifiable. Schmitz comments: "Even in acoustically poor or unfavorable settings, artists and sound professionals need outstanding tools. Whether in the studio, or doing mixing at home or on the go, you have to be able to rely on something. "It is for precisely this reason that the NDH 20 is a closed system and keeps out external noises effectively. Its folding mechanism makes it a transportable monitor system or "Reference to go", as one specialist magazine called it in the test.



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A long time prior to this test result, some results were sobering. "If we are unwilling to compromise regarding the standards of monitor speakers, then the same must also apply to headphones", says Wolff, who together with his team is also developing the KH monitors and helping to set the standard for "neutral" and "flat". Wolff laughs: "You can't measure headphones like we do with our loudspeakers. That was unfamiliar territory. If we develop a monitor, then it has already been measured and fully simulated before the first prototype. That's not the case with headphones. With headphones you are better off trying on lots of different models." The aim was as follows: the future studio headphones were to become the acoustic counterpart to the neutral sound of the KH monitors. Their acoustics ought to be the translation of what the Neumann studio loudspeakers promised to do.

Which meant round upon round of corrections. How do drivers and earpiece materials need to be tailored to one another, which materials altered resonance behavior?

The real art lay in good internal sound absorption. In addition, the signals could theoretically also be electronically filtered. This was not an option for the Neumann developers, because then the character of the headphone changes along with the output stage of the driving amplifier. A variant with too many unknowns. So the developers, suppliers and designers focused on acoustic absorption, which incorporated all driver elements and all earpiece materials. "The upper mid-range was difficult. The non-linearities required us to be somewhat inventive until we were at the reference level of the KH monitors", says Wolff.



"Absolutely every element of the headphones has its reason because it aids their quality. We have transferred this aim into the design", says product designer Anke Scherer.

Equally critical was basic anatomy: no head, no ear is ever the same. "This intimate interaction between ear, head shape and headphones has a huge influence on the sound which reaches our hearing", says Schmitz, recalling several trial runs.

Alongside the internal values, the team in Berlin also defined the external values. The design should not only equip the – what are definitely weighty – headphones to be comfortable for hours of work. "We also wanted people to be able to spot the reliability and quality promise offered by our first studio headphones", says product designer Anke Scherer. Which substances are suitable, keep their quality, remain comfortable? Which materials are "Neumann" – and which are not? The fact that today even the insulation rings on the plugs are in an orange color "is not an indication of being part of a fashionable set", but of finesse down to the last detail. Because ultimately, everyone in the team worked like this: absolutely every element of the headphones has its reason because it aids their quality. We have transferred this aim into the design", says Scherer.



While we are talking, the developers indicate an area of the warehouse in which all prototypes and models are stored. "Neumann never forgets something from the route towards the goal", says Wolff. Precisely how many samples and how much development time have gone

into the NDH 20 is something the teams, smiling, will not reveal. Trade journalists and sound engineers didn't need this long to draw their conclusions: the first Neumann headphones represent the birth of a new, uncompromising reference model for monitoring, mixing and recording.





WHAT THE

"I can honestly say these are the best closed back headphones I've used."

PRO-TOOLS-EXPERT.COM

"It continues in the same style in the middle ranges, cleanly adjusted, no coloration tendency, high transparency and no blaring resonance like I have often had to tolerate with headphones. Reference to go."

STUDIO MAGAZIN

"The first thing I notice is the NDH 20's carefully balanced sound image. So it's safe to say that the NDH 20 is the ideal complement for anyone working with Neumann speakers. The NDH 20, therefore, is one of the few closed-back headphones I'd recommend for mixing."

TOOLS4MUSIC

"...precisely the kind of portable tool an audio engineer needs."

AUDIO TECHNOLOGY

"In addition, the sound of the NDH 20 seems to me to be more effortless for long periods, because overall a lower monitoring volume is needed to assess a mix."

No, they're not comfortable headphones for listening to music, they are a professional audio tool for studio and stage allowing the user to assess mixes or simply a powerful sound for monitoring one's own playing."

TOOLS4MUSIC

"If you are a fan of closed headphones, and are looking to find what is probably at this point in time, the best reference grade closed and affordable headphones ever created, then you have found them. You can mix and master on these headphones. They are sonically accurate and very flat-neutral regarding their tone. They have outstanding clarity, very fine mids, impressive resolution, excellent soundstage, and are of decent comfort when wearing for longer periods of time."

USER ON PROF-X.COM

"Surprisingly, the stereo stage does not feel as wide as one is actually used to from a set of headphones – really astonishingly loudspeaker-compatible. Also, the balance of the stereo stage with well-embedded phantom center provides a reliable basis for decision-making. There are not that many headphones that can do this."

STUDIO MAGAZIN

"The Neumann's also work very well as an enjoyable audiophile listening experience."

USER ON PROF-X.COM, A BIT LATER

EXPERTS SAY

"For me, it is always somewhat more crucial what is happening in the intervening spaces within the panorama – the separation of the individual sound events from one another, their precise localization and the precisely accurate placeability when mixing. In short: here the Neumann NDH 20 absolutely ticks all the boxes. Just as important regarding suitability for mixing is the depth gradation. Once again, our candidate doesn't miss a trick, and the contrast between 'front' (direct sound) and 'rear' (echo) is very marked."

DELAMAR.DE

"The NDH 20s exude classy design, durable construction and demonstrate a history of knowing what reality sounds like – a worthy addition to the Neumann tradition."

TAPE OP

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SOUND & RECORDING

"The drivers are powerful, the reproduction even, clean and uncoloured, and the sound is balanced, full and honest. While the headphones are not pleasing or exciting to listen to, believe me, you will not miss a thing when monitoring recordings or referencing a mix."

MIXDOWN MAG AUSTRALIA

"One thing I still need to get used to is the big and wide soundstage the Neumanns create."

The sound is more distant, but also very distinct. The separation between the instruments is excellent.

Sometimes I've got the feeling I'm listening through monitors, as the sound is somewhat unfolded in front of me."

USER ON HEAD-FI.ORG

