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DPA 4466/4488 CORE Headset Mics

By: Mark Johnson

DPA marches on with its CORE products. The most recent are the DPA 4466 CORE and 4488 CORE headset microphones.

The DPA 4466 CORE omnidirectional and 4488 CORE directional mics incorporate the brand's 5mm capsules, which are IP58-rated against dust ingress and water immersion. The mics are available in black and beige, with a brown option slated for release later this year, to fit a variety of applications. The mics utilize DPA's MicroDot adapter system, which provides the ability to interface the microphone to a wide range of popular transmitters, including AKG, Audio-Technica, Beyerdynamic, Lectrosonics, Sennheiser, Shure, Sony, and more, along with a hardwired option.

DPA 4488 CORE directional headset mic.

Getting ahead

The flexible headset, based on DPA's 6066 design, is touted as "one-size fits all" and uses a three-point contact system to provide a secure and comfortable fit. The points of contact are above the ear, below the ear, and behind the ear, which provides a contact point that many other mics don't offer and adds additional support. In my experience, DPA mics have traditionally provided a secure, yet comfortable, fit. This is just another example of incremental innovation that does not relate directly to the microphone itself, but to the system as a whole. This is the attention to detail that has been a hallmark of DPA products since the beginning.

The headset itself is manufactured of stainless-steel wire, just 0.07mm in diameter, which is treated with a physical vapor deposition (PVD) coating that provides extra durability. It looks like it was anodized. In addition to providing extra durability—let's face it, stainless steel can be pretty beefy—the PVD coating also carries the color in the previously mentioned black, brown, or beige options.

The physical vapor deposition process involves taking the coating material from a condensed phase to a vapor phase and then back to a thin film condensed phase. The most common PVD application processes are sputtering and evaporation.

PVD coatings can sometimes be harder and more corrosion-resistant than others applied by electroplating processes. Also, PVD coatings can have good impact strength and excellent abrasion resistance.

By varying the gases and duration of the PVD process, a variety of colors can be applied to stainless steel. The results can appear as brass, bronze, and other metals or alloys.

On the Dot

A winner of the Red Dot Design Award, the DPA 6066 subminiature headset is employed in the new 4466 and 4488 microphones. An international competition "aimed at all those who would like to distinguish their business activities through design," Red Dot Awards include three categories: product design, brands and communication design, and design concepts. I've often remarked in these reviews on the elegance and attention to detail in the design of DPA products. I guess the people at Red Dot agreed with me. It was only a matter of time.

The 4466 omnidirectional mic operates on the pressure microphone principle. That is, one side of the diaphragm is exposed to the sound generating environment, and the back of the diaphragm is in a "container" that provides a constant pressure.

Sound that appears at the diaphragm causes the diaphragm to move since it creates a pressure difference between the front and the back of the diaphragm. Pressure microphones are inherently omnidirectional.

The frequency response of the 4466 is 20Hz to 20kHz, although the effective frequency range can be altered with the addition of boost grids. The soft boost grid provides a response of 40Hz to 20kHz with a soft boost of 3dB from 8kHz to 20kHz. The high-boost grid also features a 40Hz to 20kHz response; however, the boost is now 10dB at 12kHz. The mic comes fitted with the soft boost grid. The total harmonic distortion is less than 1% at 134dB SPL RMS and 137dB SPL peak. The 4466 features a dynamic range of 111dB and a maximum peak sound pressure level of 144dB. When used with the optional DAD6001-BC XLR adapter, the mic can drive up to 300m (984') of cable. For wireless operation, the mic requires 5V to 10V. As noted, the 4466 can be used with a wide variety of wireless transmitters, enabled via various adapters: the DPA MicroDot, TA4F Mini-XLR, three-pin Lemo, and Mini-Jack.

The whole thing weighs in at just 12gm (0.4oz) including the cable and MicroDot connector. The cable diameter is 1.6mm (0.06") and the cable length is 1.3m (4.3').

Fit and finish

One of the claims for the headset is that "one-size fits all, and I can attest to that (or at least I know it fits my head). In fact, it works very well. The headset assembly is extremely lightweight, and the PVD-coated wire that makes up the assembly is very thin, though strong. It felt good on my head. As a glasses-wearer, a good, unobtrusive fit is important, so the headset doesn't get in the way of the glasses, and vice versa. It's also easily adjustable once you put it on your head. With a few other brands, you have to try out the fit and then remove it to make the adjustments. The DPA 4466/4488 headset mounts slide easily and stay in place once you have your fit.

A nice touch is the mirror in the mic case, so you can check the fit and placement. Additionally, pictograms on either side of the mirror indicate proper placement. That's just another example of DPA's attention to detail. I was also able to remove the headset without removing my glasses, another plus. Clear silicon covers at the earpieces help soften the contact that covers the wire from the top of your ear to the bottom. The headset mount is, basically, two wire earpieces that connect via a small plastic piece affixed to the end of the wire, with an additional hole for the other earpiece to slide through. At the back of the headset is a small "badge"-shaped piece that assists in holding the unit together and also provides cable management. About 6" down the cable is a clip to attach to a shirt collar for additional security.

The microphone boom clips to a small loop situated at the bottom of both earpieces, for preferred placement on the left or right side of the face. The headset is highly adjustable to assure a good and secure fit.

The only distinguishing visual aspect of each model is the microphone itself. The 4466 omnidirectional version features the screen grid on the end of the mic. The 4488 directional headset has two screens on the sides. In performance, of course, they behave very differently. The 4488 is a cardioid microphone, so the pickup pattern is directional, which is helpful in a noisy environment. As established, the 4466 is a pressure microphone. The 4488 is a pressure gradient microphone, with both sides of the diaphragm open to sound waves, which, you guessed it, is found in all directional mics. Unlike pressure microphones, which can be omnidirectional, pressure gradient mics can create a variety of pickup patterns. Additionally, there is a slight bend, away from the face, on the 4488's

DPA 4466 CORE omnidirectional headset mic in the storage case (that's a mirror in between the pictograms to check placement and fit).

DPA 4466 CORE omnidirectional microphone capsule.

boom. The other difference is a 4dB to 6dB soft boost at 15kHz. Looking at the frequency response graphs, the 4466 looks mostly ruler flat up to where the soft boost or the high boost begins. The 4488 is flat until about 1kHz, then begins an oh-so-slight rise until about 8kHz or so. After that, the rise is a little more aggressive until 15kHz.

Fire it up!

How low can you go! That was the first thing I noticed when I fired up the 4466. It's got a great low end. On a stage—with other noise sources around and loudspeakers potentially in close proximity, a lot of the low end would probably have to be equalized out—but, man! If there's a situation where you can use it or need it, say broadcast or with a well-behaved PA, it's nice to experience a full-bodied vocal. Also, taking into consideration the proximity of the mic to the noise source (a mouth), you would not have to run these particularly hard. Suggested applications would be for use in theatre, broadcast, conferencing, or houses of worship. The review 4466 mic came with only one grid, which I assumed was the soft boost grid, based on how it sounded. An optional high-boost grid is also available.

And then there is always the 4488 directional system. Again, it has very solid low end, though, thanks to the slow rise in the frequency response, it has a bit more "edge" to the sound, but in a good way. It always remained smooth. Being a cardioid, the mic was more susceptible to plosives. Though with the placement at the corner of the mouth the chances of wind blasts from the mouth were lessened. Also, there are those little foam windscreen accessories that work wonders, although they do increase the visibility of the mic somewhat.

Documents, documents, documents

The documentation for the microphones includes general specifications for the XX66 and the XX88 series (XX = 40, 42, or 44) with the main differentiation being how the headset attaches to your head. There is also a pictogram quick-start user guide for the 4466 and 4488, using actual photos that are annotated to show movement and positioning. For the most part, it is pretty informative.

Interestingly, there was no documentation regarding replacing the boost grids, so I gave it a tug to see if I could remove it. Yes, I was. Another thing was the inclusion of a soft rubber or silicone "cap." There was a red one in the 4488 case and a blue one in the 4466 case. While there was no mention of its purpose or function in the documentation or online, I was informed that they are makeup covers. They protect the microphone element when the mics are already position on a performer and makeup or hairspray needs to be applied. The red cover is for the omni mic, and the blue fits the directional mic. The bright colors are a visual reminder that they are fitted and can be removed prior to the talent going onstage.

Aside from the performance of the microphones (DPA utilizes the mic elements on various headset models), whose sound quality is generally highly regarded in audio production circles, the co-star is the headset itself—lightweight, comfortable, and a secure fit for most any size and shape of head.

The microphone cases are the standard DPA semi-rigid version with the embossed logo on the left side and the green DPA logo patch on the right. The two review units also included some foam windscreens.

The MSRP is $770 for the 4466 and $840 for the 4488 (MicroDot connector version only). A variety of adapters for use with virtually any body-pack transmitter are available for an extra charge. MicroDot adapters for wireless transmitters are $100 and the XLR adapter with a belt clip for hardwiring the mics is $115. Contact your local dealer and they can order a complete system, including your preferred adapter.

While not inexpensive, DPA has a rightly deserved place in the upper echelons of design, manufacture, and performance. If you are in the market for a high-quality, high-performance headset system, the DPA 4466 CORE Omnidirectional and 4488 CORE Directional microphones should have a place on your shortlist.