

# DPA d: sreet CORE 6061 Omni Subminiature Lavalier Microphone

TECHNICAL FOCUS: PRODUCT IN DEPTH



DPA 6060 mic size comparison with DPA 4060 mic.

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I'll go right ahead and admit it: I'm a fan. I've used DPA mics in many different types of situations and environments throughout my career. Some years back, I even had the opportunity to visit the DPA facility in Denmark.

And, over the years, DPA has engineered some really nice microphones that are universally well-regarded by audio pros representing many different markets and application scenarios.

As with other things pro audio, microphone technology has made some advancements as well. Late last year, DPA announced its CORE mic amplifier technology, which provides a substantial improvement in the dynamic range and total harmonic distortion (THD) specs, up to 14dB in some cases.

DPA's first order of business was to update some of the models in its existing line. CORE technology is incorporated into the company's d:sreet miniature microphones, d:fine headset mics, and d:vote instrument mics. I recently had the opportunity to review the d: vote CORE 4099 instrument microphone. For that review, please refer to the September 2018 issue.

Now, DPA has developed a new mic that incorporates CORE technology in a form factor that is only slightly larger than a grain of rice. The d:sreet CORE 6061 omni subminiature lavalier microphone really has an opportunity to live up to its name: It is so small it really can be d:sreet.

The original goal in the development of CORE technology, which was realized over several years as the evolution of DPA's continuing research, was to increase the available dynamic range, as well as minimize distortion.

This provides a greater workable area, the ability of the mic to equally handle extremely quiet sounds as well as extremely loud ones. Minimizing the distortion manifests itself by what can be perceived as cleaner or clearer high frequencies.

Both dynamic range and harmonic distortion are two critical areas in terms of microphone performance.

While some mics are used for given application due to their signature sound—be it “warm,” “soft,” “edgy,” or one of any number of descriptors— the goal of many mics is to accurately represent the sound of whatever the source might be. There might be other design criteria (appearance, size, durability) considered in the development of a mic as well.

New, new, new!

I was excited to be offered the opportunity to get a first look at this new microphone, which DPA will be releasing for sale in November. The first thing you notice is its size: DPA is classifying this mic as “subminiature,” and it is tiny! The capsule is about 1/8" in diameter, and about 5/16" long (not including the cable strain relief, which is almost as long as the mic itself), so it will be easy to conceal. That’s important, since DPA projects the primary markets for the mic to be theatre, film, and broadcast. Truth be told, the MicroDot connector is larger than the mic. Speaking of which, the MicroDot connector allows for the use of multiple connector types so the mic will work with most, if not all, popular wireless systems. There is even an XLR MicroDot adapter, so you can use it as a wired mic, should you desire.

The sensitivity for the high-sensitivity (DPA designates this as the “normal SPL” model) 6061 is 20mV/Pa. The frequency range is 20Hz to 20kHz. The equivalent noise level is 24dB(A). Total harmonic distortion is less than 1% up to 129dB SPL peak. (This is the manifestation of the CORE technology.) The dynamic range is, typically, 105dB with a maximum peak SPL of 134dB.

The low-sensitivity (designated as the “loud SPL” model) specs are 6mV/Pa (sensitivity); equivalent noise level is 26dB(A). THD is less than 1%, up to 137dB SPL peak. The dynamic range is typically 111dB, and maximum peak SPL is 144dB.

While the new 6000 Series (which includes the 6061) is being promoted as superior in performance to DPA’s 4000 Series, it is meant to complement the latter. With the 6000 Series, DPA adds to the depth of its product lineup, and provides more choices.

Along with the new mic, DPA has also developed a new clip. This is almost as significant, as how you are able to apply the mic is a key factor in its usability. You can fasten the clip in any needed orientation (horizontal left or right, vertical up or down) and rotate so the mic is oriented in whatever axis you choose—although it is an omni so, for the 6061, the orientation of the mic is mostly for logistical considerations (it can work on both left- and right-button shirts—women’s as opposed to men’s), or visual considerations, or for placement, or cable run. While a windscreen was not provided with the review mic, I would guess that one is either available, or will be available once the mic ships.

Small mic, big dynamic range

The promotional materials regarding CORE technology say that the mics have a cleaner and more open sound, “from a whisper to a scream.” As I was checking out the 6061, I listened to the mic through a set of headphones.

For me, the thing that impressed about it was that it wasn't impressive. It just sounded natural and normal. That's what you want and expect, and that's what I got. I didn't try the screaming part, though. I'll take DPA at its word for that. Also, being an omni, it picked up my fingers on the keyboard of my computer as I was typing the review. It also picked up my wife talking to me from the other room.

Other than having a set of headphones clamped to my head, everything else sounded normal and natural. And did I say this mic is tiny? Since it is so small, it looks fragile, so I'm interested in its durability. In that regard, time will tell. While the stainless-steel cap is removable, that's primarily for cleaning purposes. Unlike other models that provide high and soft boost grid options, there is only one style cap. The cap installed on the 6061 provides a soft boost similar to that of the 4060 models (3dB at 8 to 20kHz). Along with the cap, the mic is also constructed of stainless steel; in addition to the cap, the mic is encased in the metal, save for one small opening.

And it is so small you really can't see any of the inner workings. To provide additional protection and give the mic a matte finish, a treatment called physical vapor deposition (PVD) is applied, which provides an ultra-thin colored protective layer. DPA is saying that the mic is designed to be used in rough environments. I'm interested to see how it holds up to moisture and its ability to withstand sweat. The existing CORE 4061 mic is IP58-rated for moisture and dust, and, from what I understand, the 6061 will utilize the same technology, so I would imagine the ability to function in that kind of environment would be similar.

The review mic had a matte bronze finish with a flesh-colored cable. Once officially released, the available colors will be beige, brown, black, and white.

Additionally, the series will also be available with hardwired connector options.

What amazes me is how much more DPA was able to miniaturize its CORE amplifier circuitry from the first iteration. It kind of reminds me of the 1966 science-fiction movie *Fantastic Voyage*, in which a team of five people and deep-sea submarine are miniaturized down to microbe size and injected into the bloodstream of a scientist who needs precision surgery to remove a blood clot in his brain. For the 6061, DPA has taken some already pretty impressive miniaturized circuitry and shrunk it even more. It's also notable that this tiny mic sounds so good. Besides film, television, and theatre, I can imagine that some creative audio people will be coming up with additional applications as well.

The list price for the DPA 6061 will be \$549.95, with the MicroDot connector, once it's released. It will also be available as the d:fine CORE 6066 omni headset subminiature mic.

Spoiler alert: In *Fantastic Voyage*, the procedure is ultimately successful (though not without the requisite suspense and drama) and the team is able to get out of the scientist in the nick of time. For the mic: There actually is no spoiler. It is consistent with other products from DPA: high-quality design, construction, and performance, coupled with imminently useful accessories. And did I say that this mic is tiny?