

# Powerful LED flash for smartphones

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The new Oslux provides brighter and more uniform light across the entire illuminated surface. With its compact dimensions it is perfect for modern low-profile cell phone and smartphone designs. Press picture: OSRAM

Researchers from Osram Opto Semiconductors have developed an LED chip that makes it possible to offer smaller pocket projectors, vehicle headlights, and cell phone camera flashes. In combination with a new package the new UX:3 chip is 50 percent brighter than the precursor package. In combination with an optimized lens, the light is much better distributed. The chip is used in the Oslux LED, which is therefore considerably more efficient at high currents than previous LEDs and is impressive for its very high luminous efficiency over a small area.

At a distance of one meter, for instance, such an LED flash evenly illuminates a diagonal of 90 cm. That is sufficient for capturing sharp images even under unfavorable light conditions. At 150 lux, the LED

with the UX:3 chip is 50 lux brighter than its predecessor. As a result, high-quality images can be taken even with very flat cell phones or smartphones.

Normally, when taking photos at night with a camera phone, the flash is capable of relatively bright illumination of the middle of the image area, but the corners appear somewhat dark. This is because the [luminosity](#) of the LED itself is too low — it just can't produce enough light — and the lens doesn't distribute the light evenly enough. This creates a bright circle with dark edges, an effect that occurs especially under very unfavorable light conditions. To change this situation, the researchers from Osram rearranged the internal layout of the [LED](#) chip.

The chip consists of a metallic lattice and two semiconductor layers. The lattice conducts the current to the upper layer, from where the electrons move to the lower layer and release energy in the form of light. With conventional LEDs, however, the metallic lattice is positioned above both layers and thus diminishes the light. The effect is similar to what would happen if you place a dark cloth over a light bulb. The researchers at Osram therefore moved the lattice all the way to the bottom, enabling them to increase the “wall plug efficiency,” which describes the relationship between the radiant flux of the chip and the electrical power that flows through it.

Provided by Siemens

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