PRESS RELEASE

Super-bright and highly efficient red OLED microdisplay

Scientists at the Fraunhofer Institute for Photonic Microsystems IPMS have developed a groundbreaking red OLED microdisplay that is both exceptionally bright and highly efficient. The first results of this innovative technology will be presented at the SID Mid-Europe Conference 2026 under the theme "Augmented Vision: Displays for Defense," taking place from March 16 to 17, Jupiter Lisboa Hotel - Rooftop & Spa | Site Oficial, in Lisbon, Portugal.

OLED microdisplays are characterized by their compact design, sharp presentations, and low energy consumption, making them ideal for wearable technologies. The latest microdisplay from Fraunhofer IPMS raises the brightness of such systems to a new level. It allows for the display of changing full-graphic symbols, which not only improves precise alignment but also greatly facilitates optical assembly.

Like all other microdisplays from the institute, this new display is based on standard CMOS semiconductor processes, with a silicon backplane serving as the foundation for the OLED technology.

"The new red OLED microdisplay achieves impressive brightness levels of 35,000 cd/m² while consuming very little power," explains Uwe Vogel, division director of microdisplays and sensors at Fraunhofer IPMS. "Thanks to our ultra-low-power technology, only the necessary pixels are changed for the next image instead of updating the entire image, which saves a tremendous amount of power."

The high brightness now enables use in data glasses and helmets under daylight conditions. This was achieved through a newly developed OLED stack with highly efficient materials, allowing previously unattainable brightness for red OLEDs.

Moreover, the new OLED stack can be transferred to various backplane formats. The scientists at Fraunhofer IPMS are looking forward to customer- and application-specific developments of these new microdisplays, marking another important step in the evolution of display technology.

Editor
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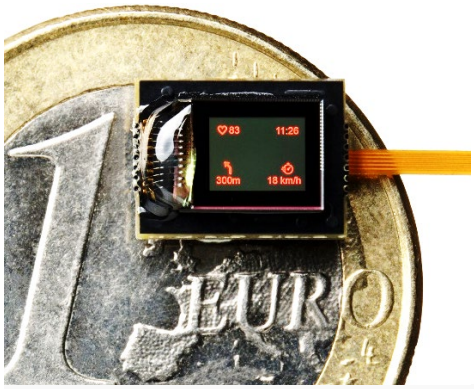
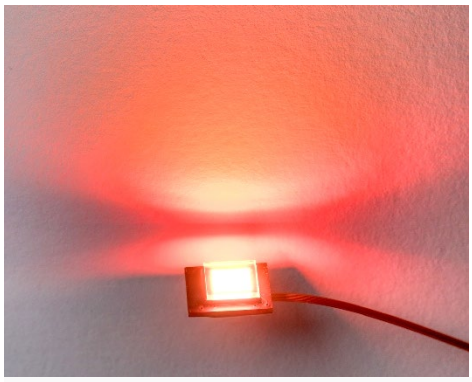
Image Material



Red OLED microdisplay with 320x240 pixels © Fraunhofer IPMS


Red OLED microdisplay with 35.000 cd/m² ©Fraunhofer IPMS

Fraunhofer IPMS at the SID Mid Europe Conference 2026 "Augmented Vision: Displays for Defense": Home - SID-ME Conference 2026

Table-top Stand:
Microdisplays and Microscanners

Lectures:
Dr. Thilo Sandner
"Customized MEMS scanning mirrors for laser projection displays and applications in sensing, LIDAR, space, and optical communication"

Dr. Uwe Vogel
"O/LED microdisplays for near-to-eye wearables, and CMOS-embedded optoelectronic sensing and imaging"

About Fraunhofer IPMS

The Fraunhofer IPMS is a leading international research and development service provider for electronic and photonic microsystems in the application fields of Intelligent Industrial Solutions, Medical Technology and Health, Mobility, Green and Sustainable Microelectronics, Aerospace, and Defense. The institute works on electronic, mechanical, and optical components and their integration into miniaturized devices and systems. The service range includes everything from concept development to product development and pilot manufacturing in its own laboratories and clean rooms.