

# OLED Microdisplay Market Report by Type (Near-To-Eye, Projections), Resolution (HD, Full HD), End Use Industry (Automotive, Healthcare, Consumer Electronics, Military, Law Enforcement, and Others), and Region 2024-2032

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## Abstracts

The global OLED microdisplay market size reached US\$ 235.8 Million in 2023. Looking forward, the market is expected to reach US\$ 1,223.1 Million by 2032, exhibiting a growth rate (CAGR) of 19.7% during 2024-2032. Continuous improvements in the consumer electronics industry, along with the escalating demand for medical displays and wearables, are primarily bolstering the global market.

OLED Microdisplay Market Analysis:

**Major Market Drivers:** The increasing preferences among consumers toward the miniaturization of electronic devices and a display with a wide-view angle and cleaner image are among the key drivers propelling the market. Moreover, the expanding product application in the automotive industry for prototyping the virtual design of the vehicle is also stimulating the global market.

**Key Market Trends:** Numerous technological innovations, such as the development of ultra-high-definition and high-definition (UHD/HD) OLED microdisplays, which provide high optical performance with an excellent contrast ratio, are acting as significant growth-inducing factors. Besides this, the elevating investments in R&D activities will continue to fuel the market in the coming years.

**Competitive Landscape:** Some of the prominent companies in the market include eMagin Corporation, Fraunhofer FEP, Kopin Corporation, MicroOLED S.A.S. (Photonis Technologies SAS), Seiko Epson Corporation, Silicon Micro Display Inc., Sony Group Corporation, Sunlike Display Tech Corporation, Winstar Display Co. Ltd., and WiseChip Semiconductor Inc., among many others.

**Geographical Trends:** North America exhibits a clear dominance in the market, owing to the elevating demand for high-resolution displays in the manufacturing of virtual reality, augmented reality, and wearable devices. Apart from this, the inflating focus of key players on enhancing the gaming experience of users is further catalyzing the regional market.

**Challenges and Opportunities:** One of the key challenges hindering the market is the high manufacturing costs, which can be overcome by investing in advanced production technologies and achieving economies of scale to reduce expenses.

### OLED Microdisplay Market Trends: Rising AR/VR Applications

OLED microdisplays are extensively used in AR and VR technologies, owing to their fast response times, high resolution, superior contrast ratios, etc. For example, in October 2023, Sony Semiconductor Solutions Corp. (SSS) launched the ECX344A, a high-definition and large-size 1.3-type OLED microdisplay with 4K resolution. It is usually intended for virtual reality (VR) and augmented reality (AR) head-mounted display applications. Similarly, AR devices like Microsoft's HoloLens utilize these displays to overlay digital information seamlessly onto the real world. Moreover, the growing applications in education, healthcare, gaming, and industrial training are encouraging collaborations and partnerships, which is acting as a significant growth-inducing factor. For example, in July 2023, Samsung Display acquired the U.S.-based OLED microdisplay manufacturer eMagin to expand its OLED microdisplay production for augmented reality (AR) and virtual reality (VR) devices. Apart from this, key players are leveraging OLED microdisplays to provide users with more lifelike visuals and smoother motion tracking, which is expected to fuel the market over the forecasted period. In February 2024, TCL introduced the crowdfunding campaign for RayNeo X2 standalone AR glasses, priced at US\$700. Additionally, in March 2024, MICROOLED, one of the providers of OLED microdisplays based in Europe, developed ActiveLook technology compatible with the VSpeak Glasses module, the first-ever smart augmented reality (AR) glasses solution specifically designed for aeromodelling enthusiasts. This innovative module seamlessly integrates with all ActiveLook glasses to offer real-time telemetry data directly into the pilot's field of view, thereby enhancing the way model pilots interact with their small air vehicles.

### Advancements in Manufacturing Processes

The rising emphasis of prominent players on manufacturing techniques is catalyzing the market. For instance, in April 2024, researchers from the Fraunhofer IPMS introduced a

semi-transparent high-resolution OLED microdisplay that is significantly lighter than conventional combiner-based optical see-through near-to-eye systems. Moreover, innovations, such as inkjet printing and roll-to-roll processing, are gaining extensive traction to improve production efficiency and yield rates. These techniques aim to reduce material waste and lower overall manufacturing costs, making OLED microdisplays more accessible and affordable. In April 2024, one of the OLED microdisplay developers, Seeya Technology, announced the launch of its second OLED microdisplay production line in Shanghai. Besides this, key players are working to scale up production while maintaining the quality of their product offerings, which is strengthening the market. For example, in August 2023, Apple reportedly tested OLED microdisplay suppliers to increase the production scale of future vision headsets. Additionally, in January 2023, Lakeside Lightning Semiconductor (LLS), an OLED microdisplay manufacturer based in Jiangsu, China, collaborated with the U.S.-based Lightning Silicon Technology, Inc. (Lightning Silicon), to commercialize ultra-high-definition and high-brightness silicon-based OLED microdisplays.

### Expanding Wearable Technology

The escalating demand for devices, including smart glasses, fitness trackers, smartwatches, etc., that are incorporated with OLED microdisplays is stimulating the market. For example, in February 2024, Xiaomi launched the Smart Band 8 Pro fitness band that offers a 1.74" 60Hz 336x480 AMOLED display with over 150 sport modes, 4-channel heart rate monitoring, and a 14-day battery life. Apart from this, OLED microdisplays offer numerous advantages, such as lower power consumption, better visibility under various lighting conditions, the ability to produce vivid colors and deep blacks, etc. For instance, in January 2024, Qualcomm unveiled a SoC designed to help other companies develop a new generation of mixed-reality headsets. Moreover, smartwatches, including the Apple Watch, and fitness trackers like Fitbit, are equipped with OLED technology to enhance user experience with sharper and more vibrant screens. Besides this, several advancements in R&D activities are further catalyzing the global market. In May 2024, utilizing a laser ablation patterning technique, researchers from the Pohang University of Science and Technology (POSTECH) and Korea Institute of Industrial Technology fabricated deformable micro-supercapacitors (MSCs) for storing energy in soft electronic devices.

### Global OLED Microdisplay Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the market, along with the forecasts at the global, regional, and country levels for 2024-2032. Our report has categorized the market based on the type, resolution, and end use industry.

## Breakup by Type:

Near-To-Eye  
Projections

Among these, near-to-eye currently exhibit a clear dominance in the market

The report has provided a detailed breakup and analysis of the market based on the type. This includes near-to-eye and projections. According to the report, near-to-eye represented the largest market segmentation.

Near-to-eye (NTE) OLED microdisplays are gaining significant traction in various applications due to their exceptional image quality, compact size, and energy efficiency. These microdisplays are specifically designed for devices where the screen is placed close to the user's eyes, such as virtual reality (VR) headsets, augmented reality (AR) glasses, and wearable heads-up displays (HUDs). For example, in April 2024, researchers from the Fraunhofer IPMS introduced a semi-transparent high-resolution OLED microdisplay that is significantly lighter than conventional combiner-based optical see-through near-to-eye systems. The high resolution and contrast of OLED technology make these displays ideal for immersive experiences, providing sharp, vibrant images with deep blacks and vivid colors. Moreover, their fast response times ensure smooth motion rendering, which is crucial for VR and AR applications. Companies like Sony and eMagin are at the forefront of developing advanced NTE OLED microdisplays.

## Breakup by Resolution:

HD  
Full HD

The report has provided a detailed breakup and analysis of the market based on the resolution. This includes HD and full HD.

HD OLED microdisplays, with their 720p resolution, are commonly used in applications where moderate resolution is sufficient, such as entry-level VR headsets, basic AR devices, and various consumer electronics. They offer a balance between image clarity and cost, making them accessible for a wide range of products. On the other hand, full HD OLED microdisplays, with their 1080p resolution, cater to high-end applications that demand superior visual performance. As per the OLED microdisplay market overview,

they are essential in advanced VR headsets, professional AR systems, and sophisticated military and medical devices, where crystal-clear imagery and details are critical. Additionally, advancements in OLED technology are continually improving the performance and reducing the costs of these high-resolution displays, further boosting their adoption across various sectors.

#### Breakup by End Use Industry:

- Automotive
- Healthcare
- Consumer Electronics
- Military
- Law Enforcement
- Others

Among these, the consumer electronics currently represents the largest market share

The report has provided a detailed breakup and analysis of the market based on the end use industry. This includes automotive, healthcare, consumer electronics, military, law enforcement, and others. According to the report, consumer electronics represented the largest market segmentation.

OLED microdisplays are making significant advancements in the consumer electronics industry, enhancing the visual experience across a variety of devices. In virtual reality (VR) headsets, such as the Oculus Quest 2 and HTC Vive Pro, OLED microdisplays provide exceptional resolution, contrast, and color accuracy, creating immersive environments that feel lifelike. Smart glasses, like Google Glass and Vuzix Blade, leverage OLED microdisplays to deliver clear, vibrant augmented reality (AR) overlays without compromising on size or weight, making them comfortable for prolonged use. Additionally, in high-end cameras and camcorders, OLED microdisplays are used in electronic viewfinders (EVFs) to offer photographers and videographers sharp, true-to-life previews of their shots, aiding in precise framing and focus. The inclusion of OLED microdisplays in these devices demonstrates their ability to deliver superior image quality and performance, enhancing the overall user experience and setting new standards in the consumer electronics industry.

#### Breakup by Region:

- North America

United States  
Canada  
Asia-Pacific  
China  
Japan  
India  
South Korea  
Australia  
Indonesia  
Others  
Europe  
Germany  
France  
United Kingdom  
Italy  
Spain  
Russia  
Others  
Latin America  
Brazil  
Mexico  
Others  
Middle East and Africa

North America currently dominates the market

The market research report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, North America accounted for the largest market share.

The increasing demand for various high-tech applications is positively influencing the market in North America. As per the OLED microdisplay market analysis, advancements in wearable technology, including the development of smart glasses and head-up displays (HUDs) in both consumer and professional sectors, are stimulating the market across the region. In March 2024, OLED lighting developer, OLEDWorks, received project by the U.S. Army to develop high-performance OLED microdisplays for

consumer and defense applications. Apart from this, prominent companies in the region are focusing on continuously innovating to improve display characteristics and reduce production costs, which are anticipated to fuel the market in the coming years. For instance, in May 2023, Samsung Display acquired the U.S.-based OLED microdisplay manufacturer eMagin to expand its OLED microdisplay production for augmented reality (AR) and virtual reality (VR) devices.

#### Competitive Landscape:

The market research report has provided a comprehensive analysis of the competitive landscape. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

eMagin Corporation  
Fraunhofer FEP  
Kopin Corporation  
MicroOLED S.A.S. (Photonis Technologies SAS)  
Seiko Epson Corporation  
Silicon Micro Display Inc.  
Sony Group Corporation  
Sunlike Display Tech Corporation  
Winstar Display Co. Ltd.  
WiseChip Semiconductor Inc.

(Please note that this is only a partial list of the key players, and the complete list is provided in the report.)

#### OLED Microdisplay Market Recent Developments:

April 2024: Researchers from the Fraunhofer IPMS developed a semi-transparent high-resolution OLED microdisplay that is significantly lighter than conventional combiner-based optical see-through near-to-eye systems.

April 2024: Seeya Technology, one of the OLED microdisplay developers, launched its second production line of OLED microdisplay in Shanghai, China.

March 2024: MICROOLED, one of the providers of OLED microdisplays based in Europe, introduced ActiveLook technology compatible with the VSpeak Glasses module, the first-ever smart augmented reality (AR) glasses solution specifically designed for aeromodelling enthusiasts.

#### Key Questions Answered in This Report

1. What was the size of the global OLED microdisplay market in 2023?
2. What is the expected growth rate of the global OLED microdisplay market during 2024-2032?
3. What are the key factors driving the global OLED microdisplay market?
4. What has been the impact of COVID-19 on the global OLED microdisplay market?
5. What is the breakup of the global OLED microdisplay market based on the type?
6. What is the breakup of the global OLED microdisplay market based on the end use industry?
7. What are the key regions in the global OLED microdisplay market?
8. Who are the key players/companies in the global OLED microdisplay market?



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