PLAYNITRIDE Investor Presentation

April, 2023

Dr. Charles Li, Founder and Chairman of PlayNitride (6854 TT)

“As the courageous first mover, PlayNitride is at the frontier of Micro LED - the ultimate display technology. Based on our years of R&D, we will start showing how magnificent that our world can be displayed in a way that no one has ever experienced before.”

Dr. Charles Li, Founder and Chairman of PlayNitride

Micro LED will start changing the display industry landscape since 2023.
PlayNitride, **the world's first publicly-traded Micro LED company, will be driving a decade-long paradigm shift in the global display technology.**

OLED and LCD

BOE
SAMSUNG
LG
AUO
INNOLUX

US$310bn
market cap

Disclaimer

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Outline

I. What is Micro LED and Mass Transfer?

II. Micro LED – The Ultimate Display Technology

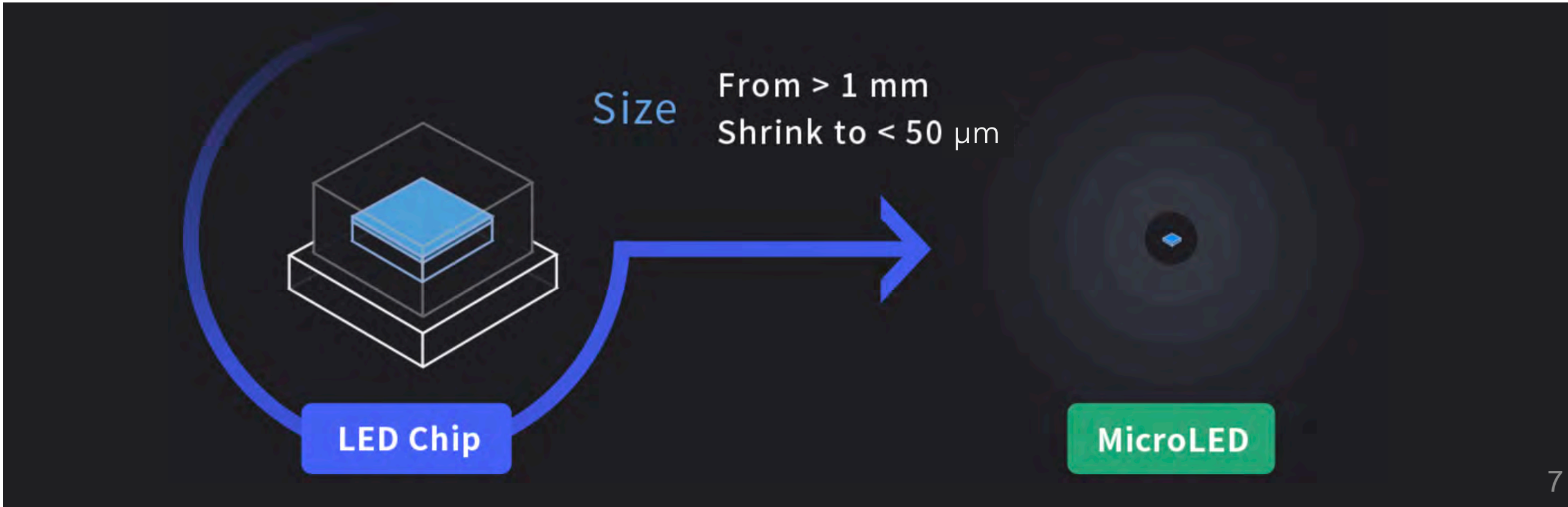
III. PlayNitride's Micro LED Leadership

IV. Appendix

I. What is Micro LED and Mass Transfer?

LED Structure Miniaturization

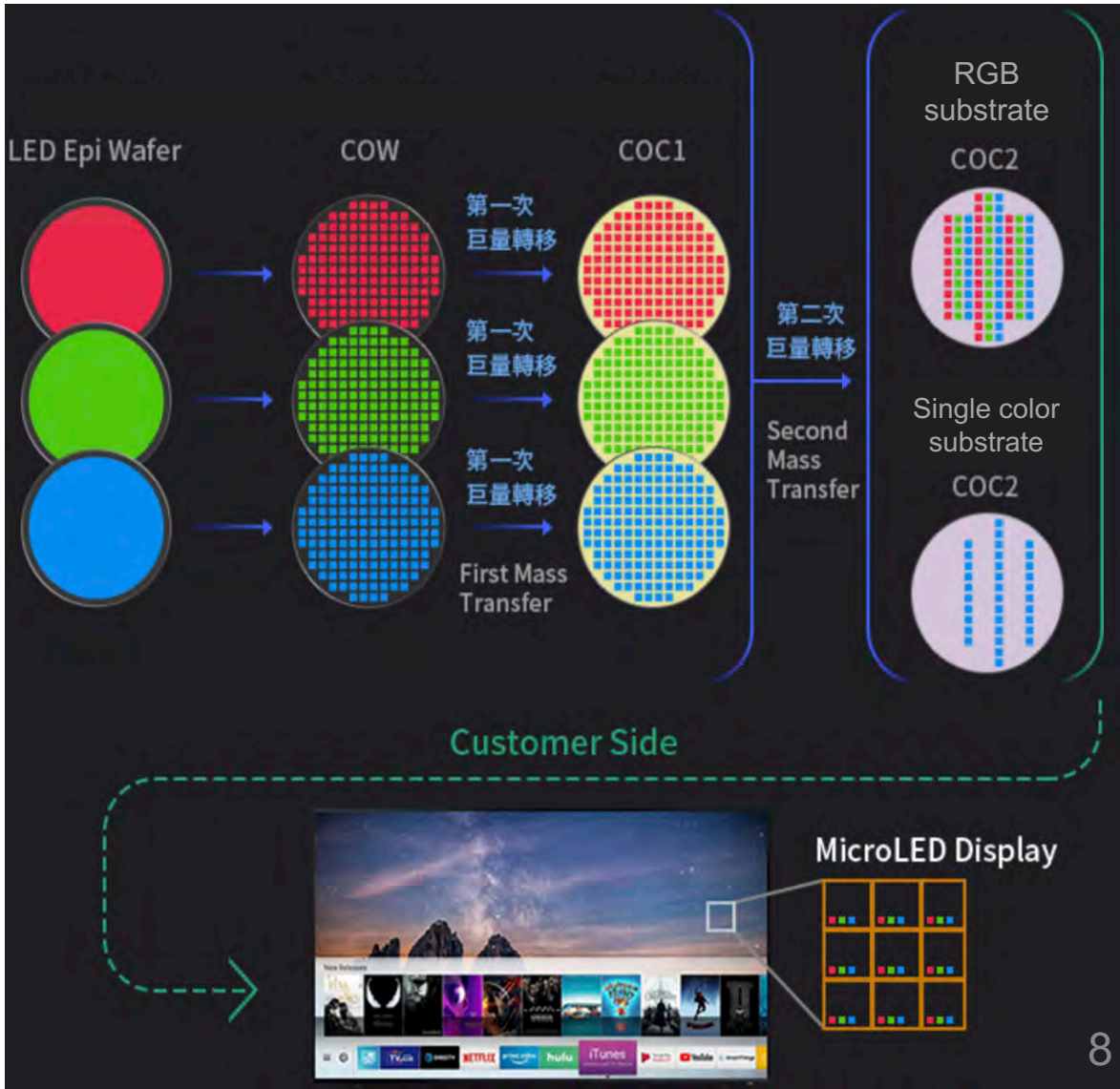
Micro LED, as the name suggests, is to miniaturize the structure of the LED by removing the LED package and substrate, so that the size of the LED device can be reduced to **less than 50μm**. A major feature of Micro LED is that the LED substrate is removed, leaving only the epitaxial film, which provides the Micro LED chip that is light, thin and short. It can be used for mass transfer production and meet the pixel size of various displays.



Mass Transfer and Chip on Carrier (COC)

During Micro LED display production, it is necessary to **mass transfer the three-color chips of R/G/B from their respective epi wafers to the temporary substrate and arrange the chips to the correct position** according to the pixel size of the display, so as to facilitate the process subsequent mass transfer process.

PlayNitride invented such already arranged temporary substrate called Chip On Carrier (COC). COC has become the industry standard and a key process in Micro LED display production.

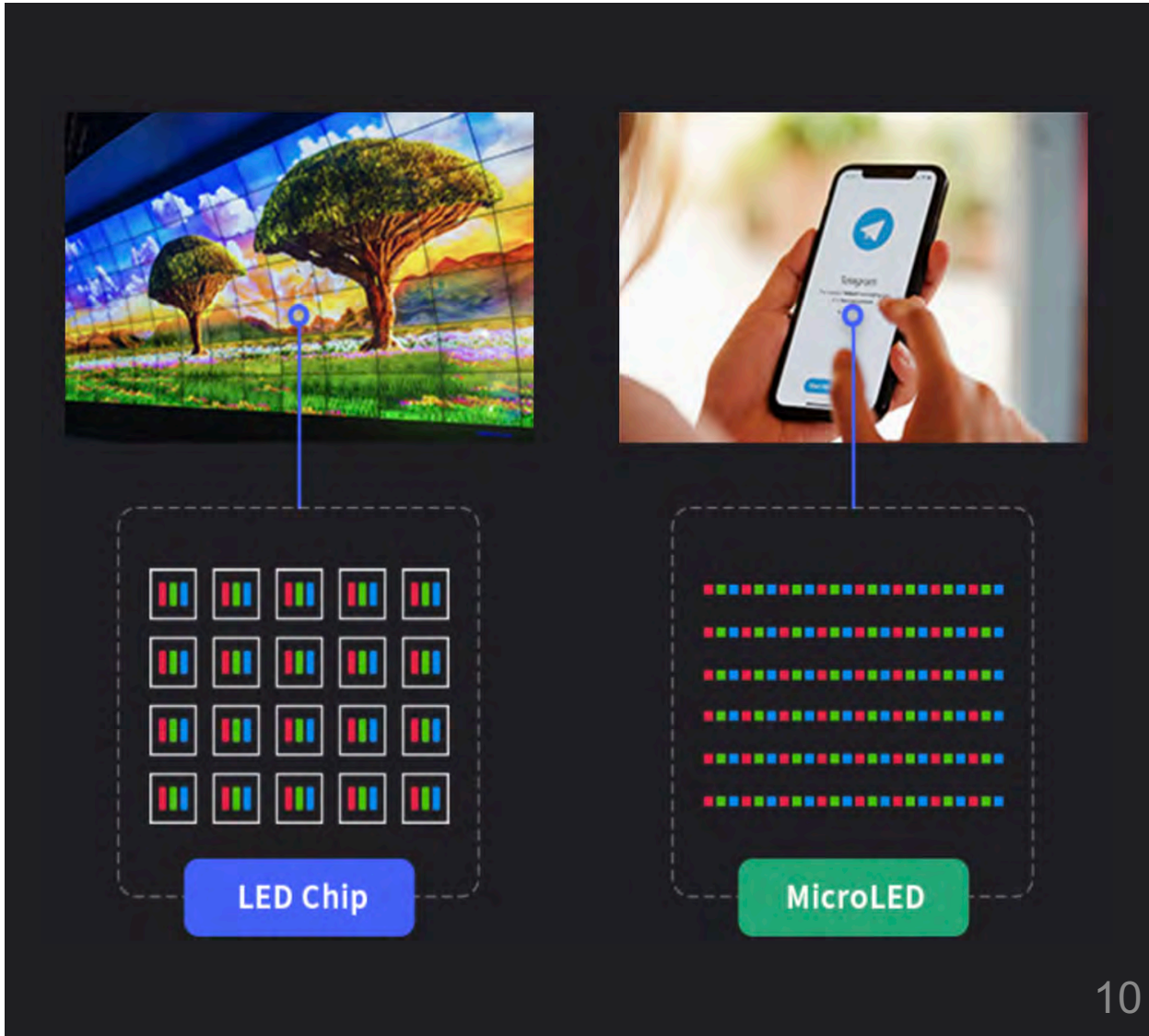


II. Micro LED – The Ultimate Display Technology

Micro LED Display

The Micro LED display combines the technologies of **LED miniaturization and arraying, and directly mass transfers and bonds the Micro LED chips to the driving backplane**, which has circuit structure design.

Ordinary LEDs can only be used in large video walls due to their large size, while **micron-scale Micro LED chips can be used in watches, mobile phones, cars, computer screens, TVs, AR/VR and other applications in various sizes and fields.**



We Are The Best Performer of Micro LED Display

Higher Efficiency & Lower Power Consumption

Longest Lifetime with Best Reliability

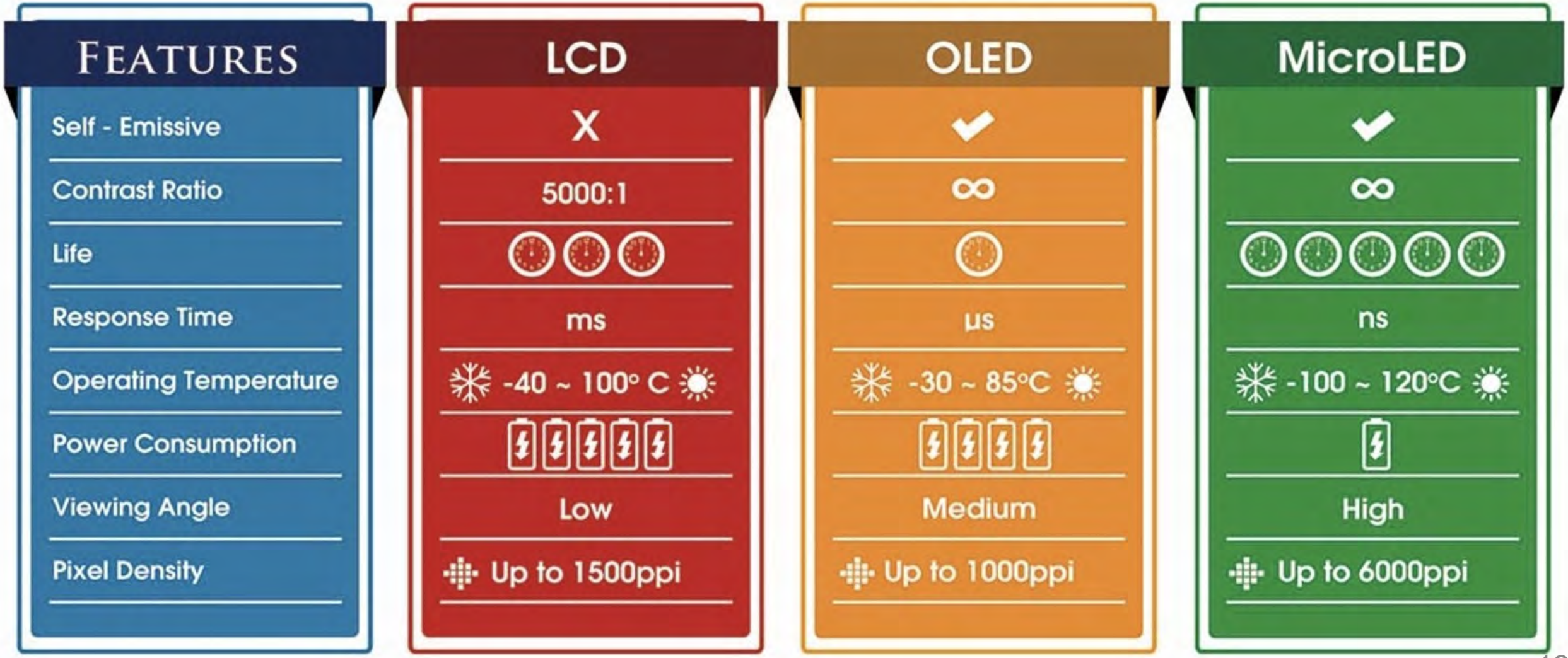
Highest Brightness & Contrast Ratio

Fastest Response Time

Highest Pixel Density

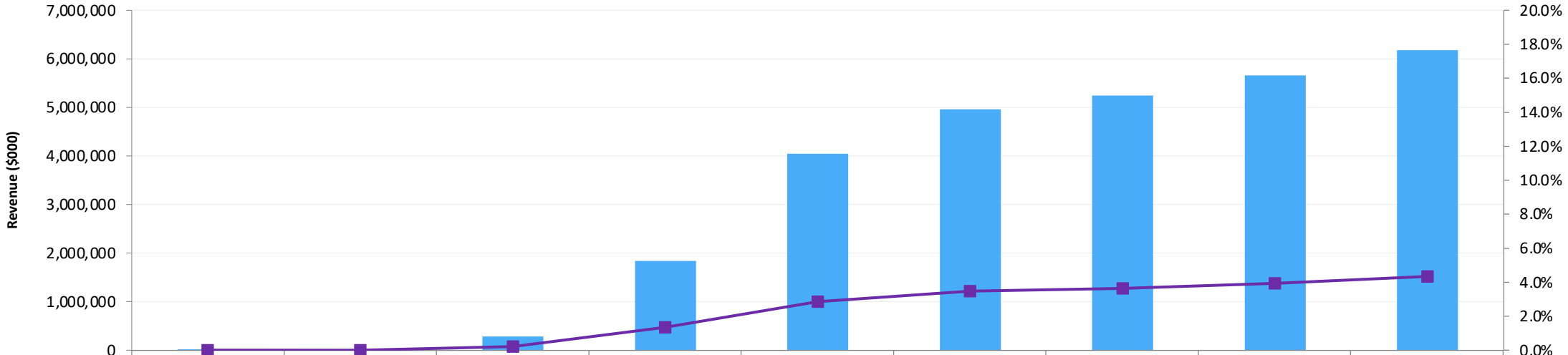
Flexible and Bendable

Micro LED Display Is The Ultimate Display Technology



Micro LED Display Market: US$6.2bn, 2029

Micro LED display revenue forecast (annual)



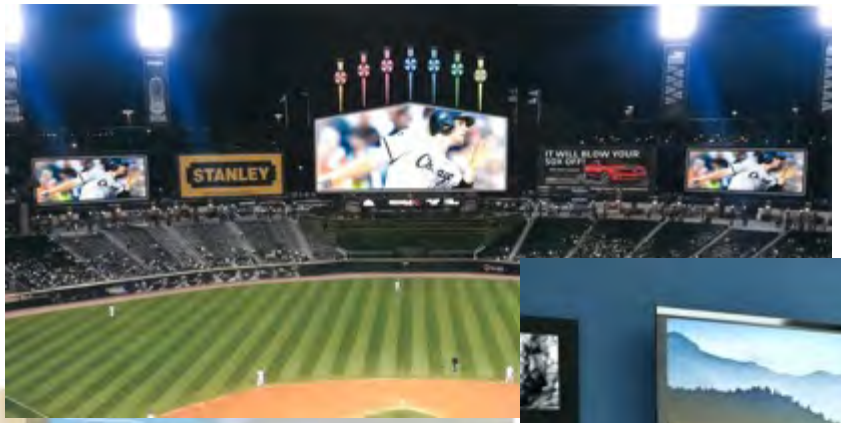
	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenue ($000)	21,200	19,378	287,870	1,841,198	4,046,630	4,965,540	5,242,957	5,658,086	6,176,424
Share (%)	0.0%	0.0%	0.2%	1.3%	2.9%	3.5%	3.7%	3.9%	4.3%

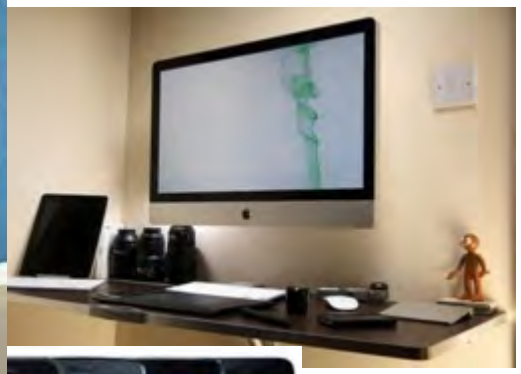
Annual revenue for Micro LED displays is about $19.4mn in 2022 and is expected to reach $287.9mn in 2023. Revenue from Micro LED displays will increase to **$6.2bn in 2029** to account for **4.3%** of the total Flat Panel Display (FPD) revenue of $143.6bn, with a **127.8% CAGR** during 2022–29.

Annual shipments of Micro LED displays are about 140 thousand units in 2022 and are expected to reach 382 thousand units in 2023. Shipments of Micro LED displays will increase to **12.7mn units in 2029** to account for **0.3%** of total FPD shipments, with a **410.7% CAGR** during 2022–29.

(source: Omdia Report)

Micro LED Displays Can Be Everywhere





Micro LED TV at CES 2023

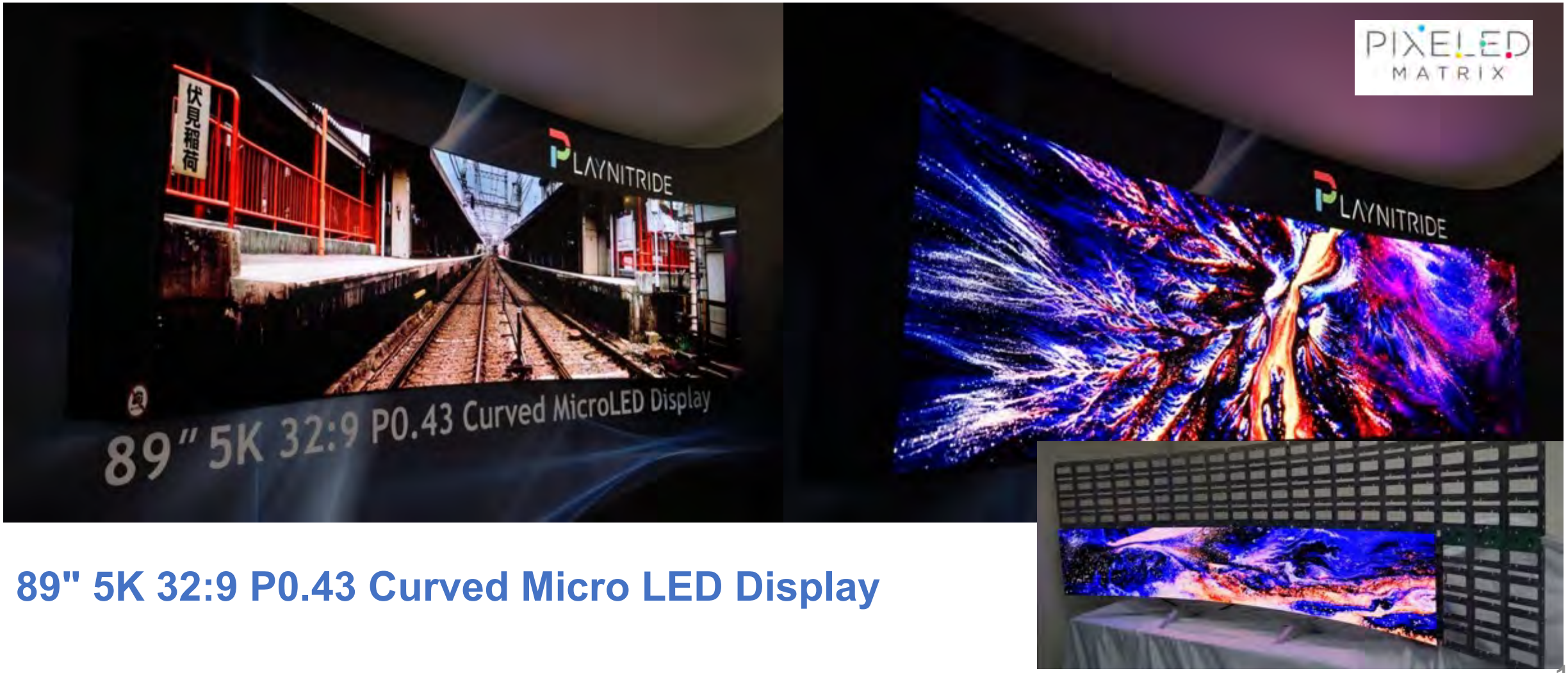
Samsung Electronics unveiled its newest MICRO LED TV Lineup at CES 2023.

The 2023 MICRO LED lineup offers new models ranging from 50 to 140-inches (50, 63, 76, 89, 101, 114 and 140-inches) to provide consumers with a breadth of options for unparalleled picture quality and screen experience. Thanks to its modular nature, MICRO LED is not bound by shape, ratio and size, making it completely customizable to fit a consumer's desired set up. In addition, it comes without bezels, so regardless of configuration, the boundary between screen and real life is seamless.

In addition to the hardware innovations, the 2023 MICRO LED supports 20-bit greyscale depth. This means MICRO LED models can express every detail in a scene, offering the finest control with over 1 million steps of brightness and color levels, delivering a true HDR experience. It also expresses 100% of DCI and Adobe RGB color gamut, resulting in stunning, lifelike colors. Together with immersive design made possible by its 99.99% screen-to-body ratio, MICRO LED delivers revolutionary performance.

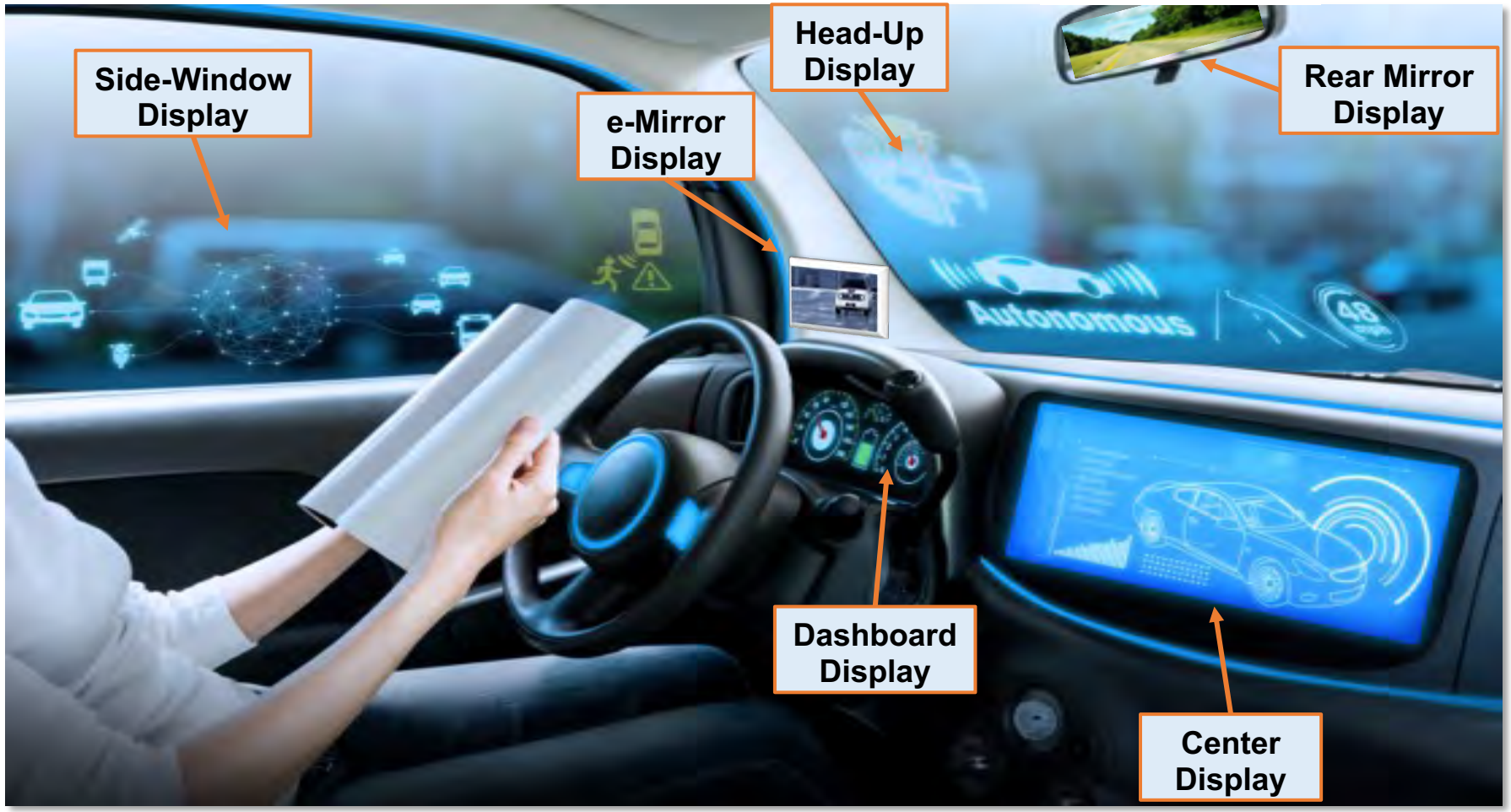
(Source: Samsung Newsroom)

Large-size Micro LED Display (Modular PCB)



89" 5K 32:9 P0.43 Curved Micro LED Display

Transparent Display Technology Is the Future of Automotive Display



Micro LED Displays for Automotive

PIXELED Display

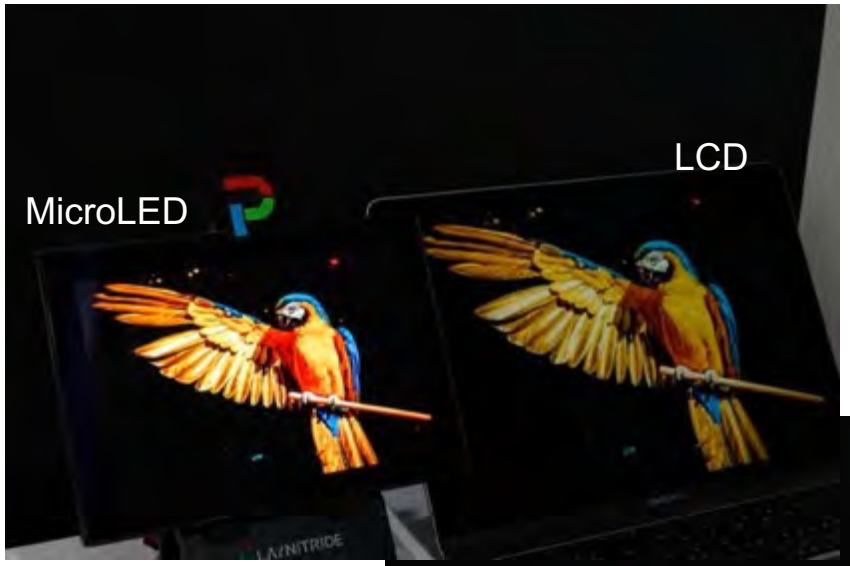
(images from AUO website)

Micro LED Displays for Automotive

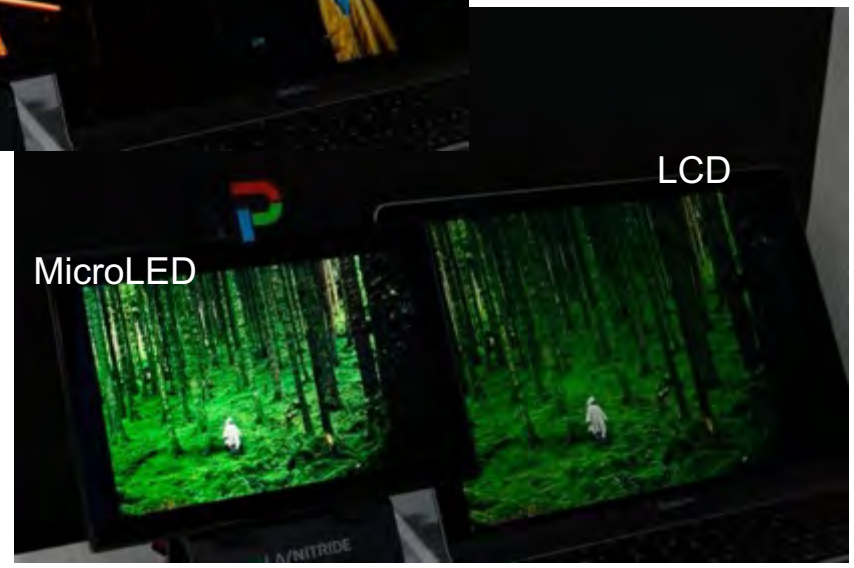
PIXELED
Display

Transparent and HDR Micro LED Displays

PIXELED Display



PIXELED Display

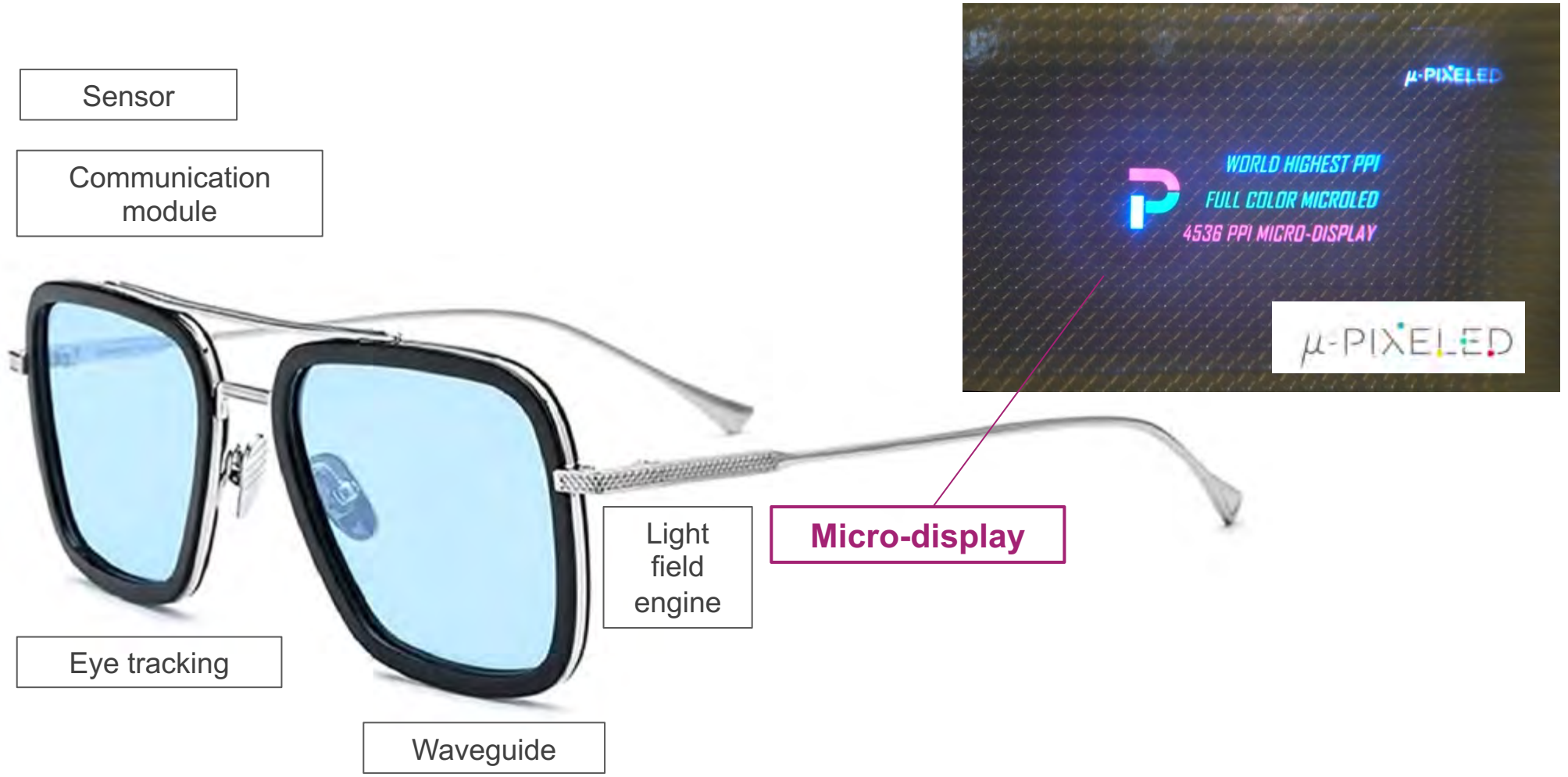


Wearable Micro LED Display

PIXELED Display

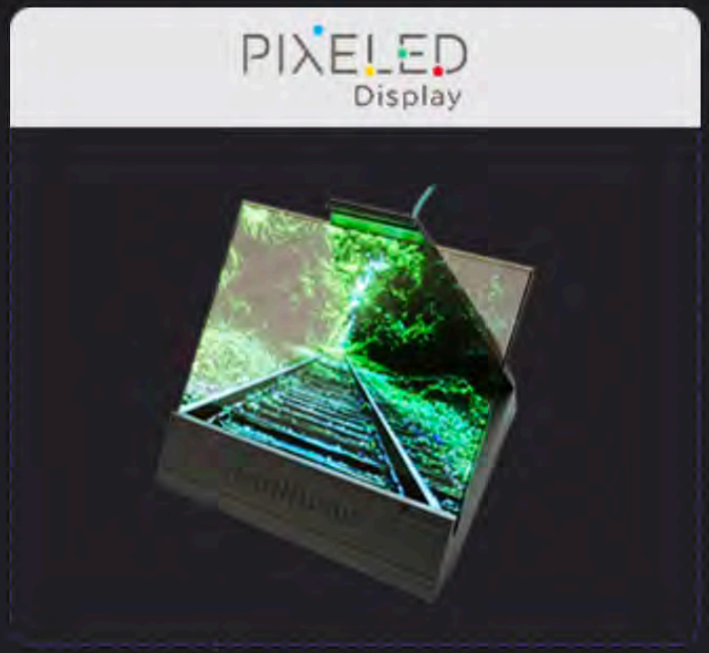
1.39" 338ppi Micro LED Circular Display

Micro LED Micro-Display Is the Key for AR Glasses



Driving Technologies Lead to Various Applications

MicroLED on TFT

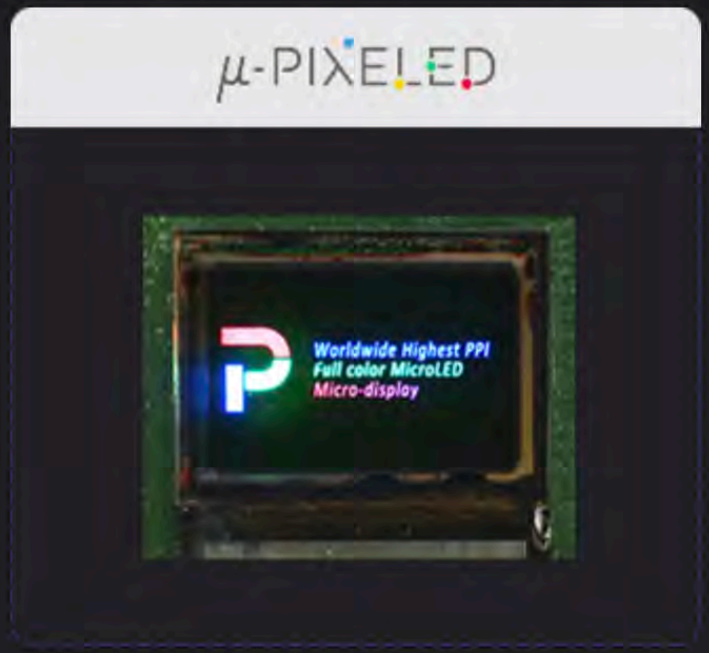


Using TFT-driven PixeLED Display technology, transparent displays, curved PixeLED Films, and various common display applications can be made.

MicroLED on PCB

Using PCB-driven PixeLED Matrix technology, it can be borderless tiling into PixeLED Tile displays of any size and aspect ratio

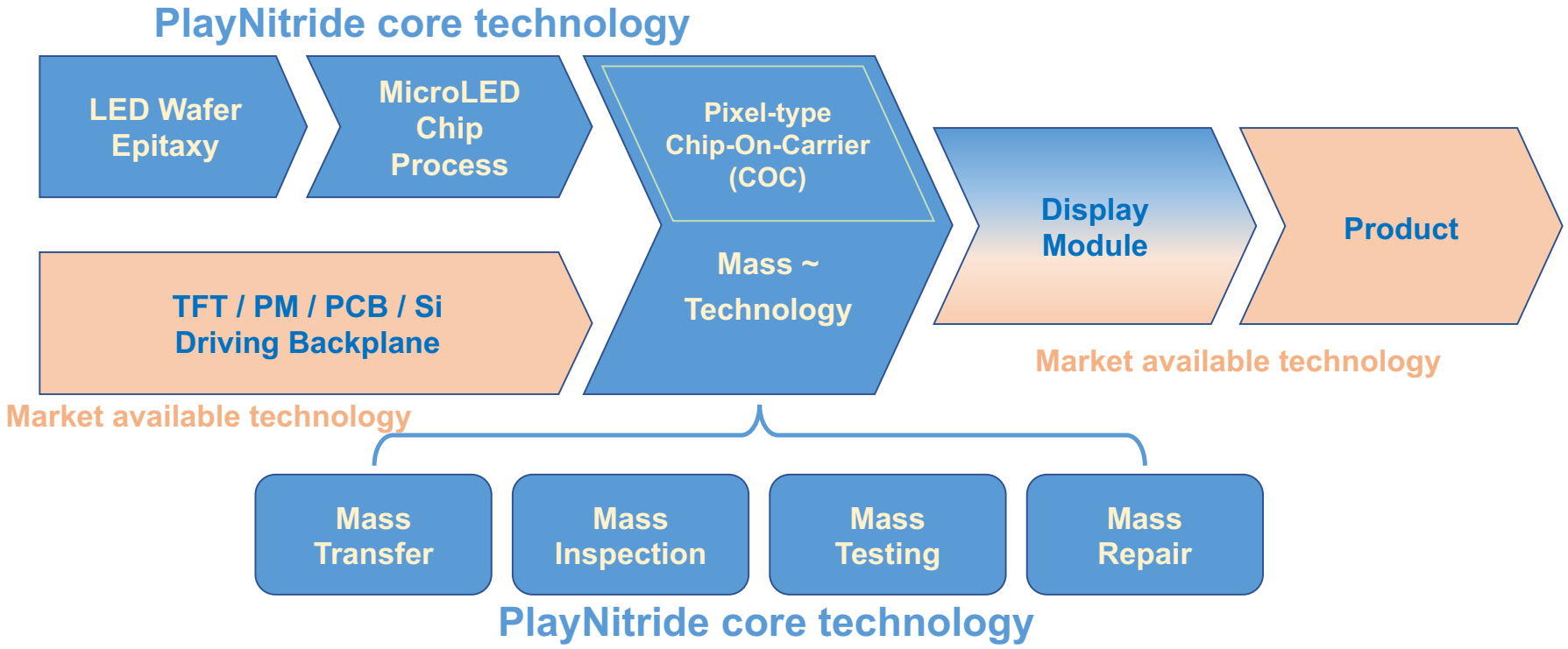
MicroLED on Silicon



Using μ-Pixel LED technology driven by silicon chip, with ultra-high brightness and ultra-fine picture quality, it can be used in AR glasses and projection HUD

III. PlayNitride's Micro LED Leadership

We Facilitate The Micro LED Ecosystem



- PlayNitride is one of the few companies that owns and integrates the key technologies of Micro LED displays. We've completed technical know-how to quickly optimize production and solve new technical challenges.
- In each technical link, PlayNitride has a strong team to innovate and develop our proprietary technology.
- PlayNitride is in a leading position in the market, and widely deploys patents and shortened learning curve.

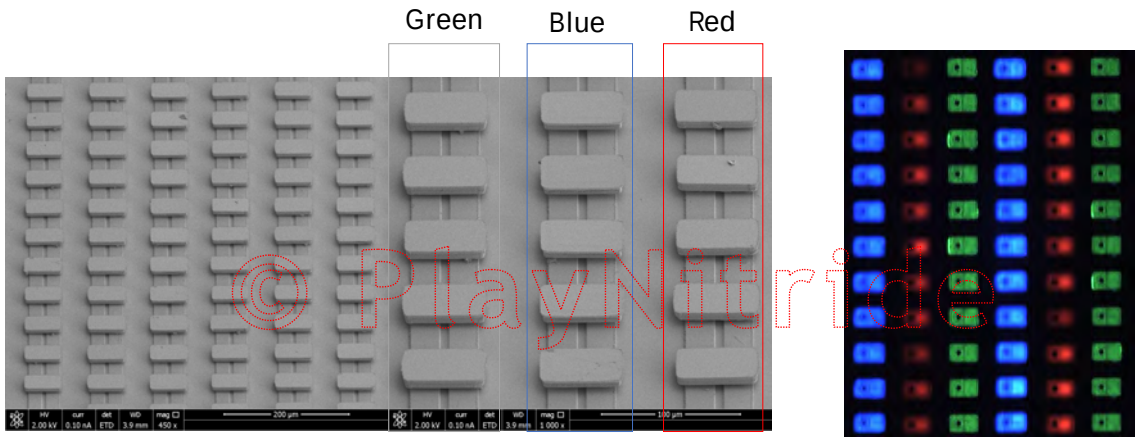
Core of R&D And Technical Advantages

High uniformity 6-inch R/G/B LED wafer

- Uniform brightness across wavelengths, no need for binning

High yield R/G/B Micro LED chips

- Chip on wafer yield > 99%
- LED wafer utilization > 80%



Industry-leading mass transfer, inspection and testing

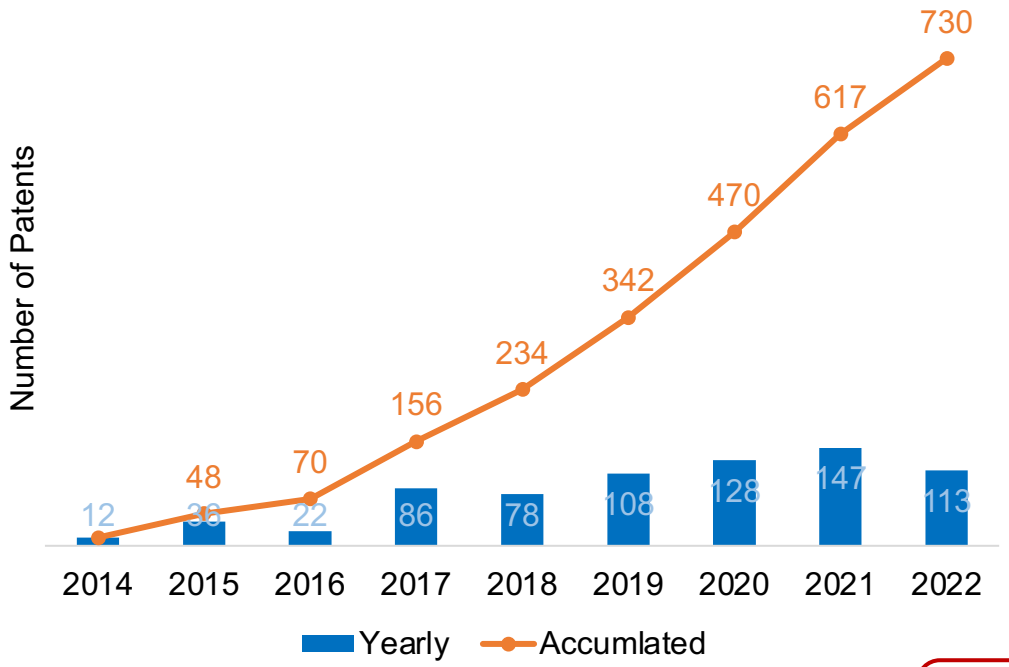
- Self-made automatic mass transfer equipment
- Massive addressing repair technology

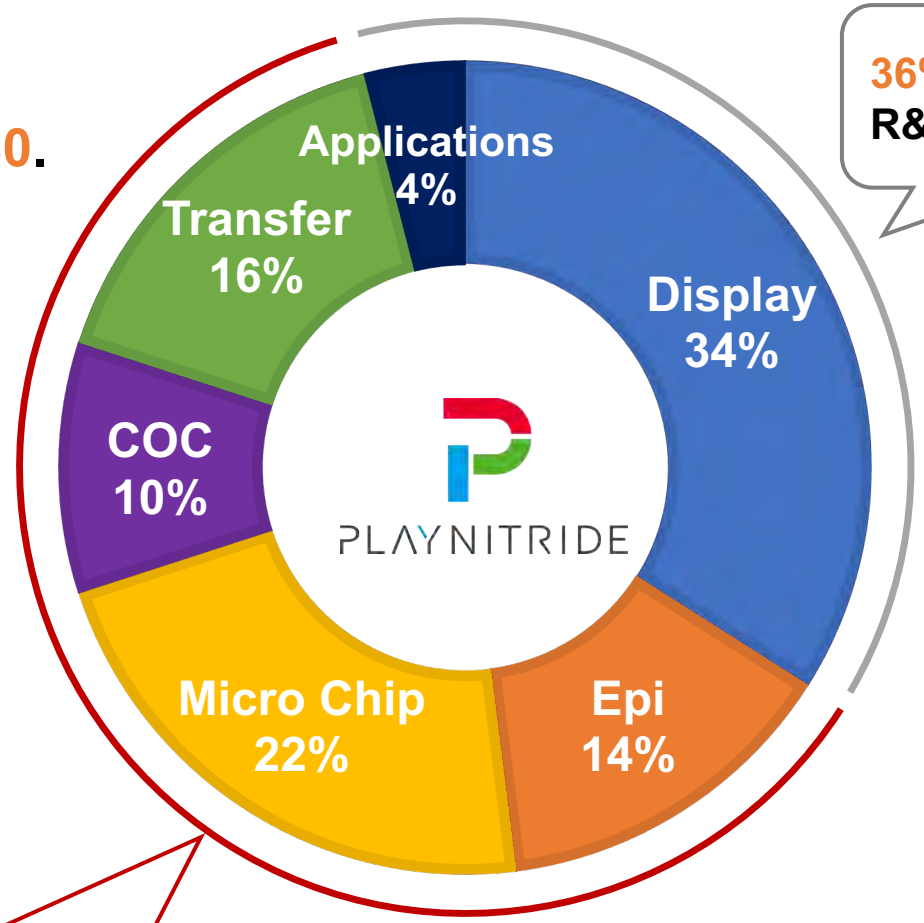
Self-developed Micro LED one-stop solutions

- Cooperating with industry-leading panel display manufacturers
- Providing various Micro LED chips for various displays including ultra-micro, tiling, highly transparent and flexible Micro LED displays.
- Supporting customers design needs for different applications

Patent Portfolio

PlayNitride total patent applications reached 730.
Covering the entire Micro LED ecosystem.



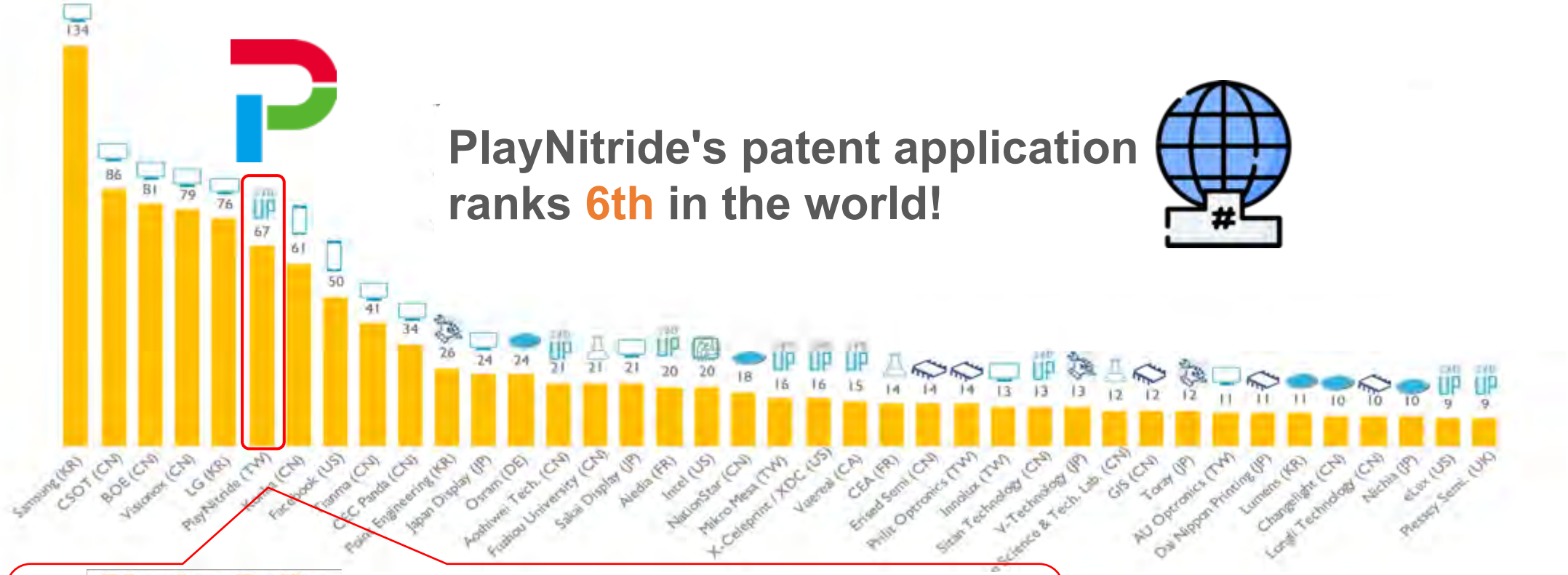


36% for potential R&D technology

64% for core production technology

* Statistics as of Dec. 2022

Global Patent Ranking



PlayNitride's patent application ranks 6th in the world!

Display Daily

"PlayNitride is very active, challenging leading panel makers or OEMs like Facebook."

From Yole Développement
《 MicroLED Displays Market, Industry and Technology Trends 2021 report》

Product Milestones

Pixel type Chip-on-Carrier of large displays

- Pilot run in 2022

Pixel type Chip-on-Carrier of commercial displays

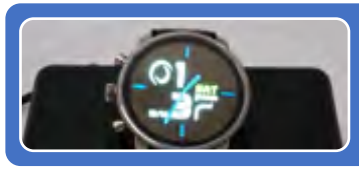
- Pilot run in 2022

Pixel type Chip-on-Carrier of automotive displays

- Prototype demonstrated in 2022

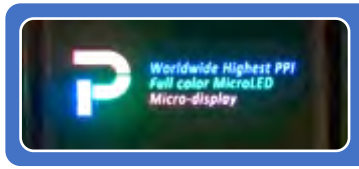
Flexible mid-size display for automotive

- Prototype demonstrated in 2022



Wearable display

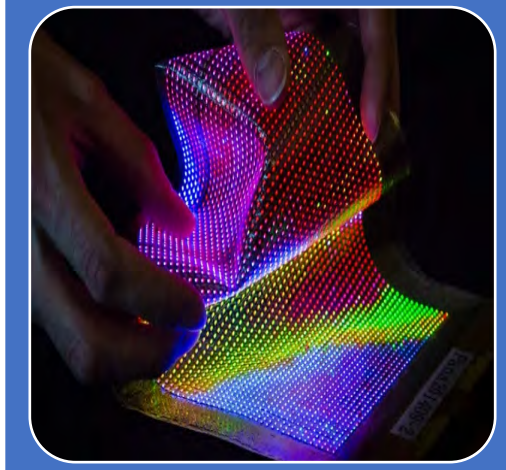
- Pilot run in 2023



Micro-display for AR/VR

- Prototype demonstrated in 2022
(2022 SID Best New Display Technology Award)

Operation Milestones



Micro LED Manufacturing

- **45-50%** cost saving per year till 2025
- Chip on wafer yield to reach 99.2% in 2023
- LED wafer utilization to reach **83%** in 2023

PLAYNITRIDE

Q&A Session

Website