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**Global and China  
Electronic Rearview  
Mirror Industry Report,  
2023**

June 2023

# Electronic rearview mirror research: 2023 will be the first year of mass production as the policy takes effect

Global and China Electronic Rearview Mirror Industry Report, 2023 released by ResearchInChina combs through and summarizes the installation, function application, development trends and products of global and Chinese suppliers.

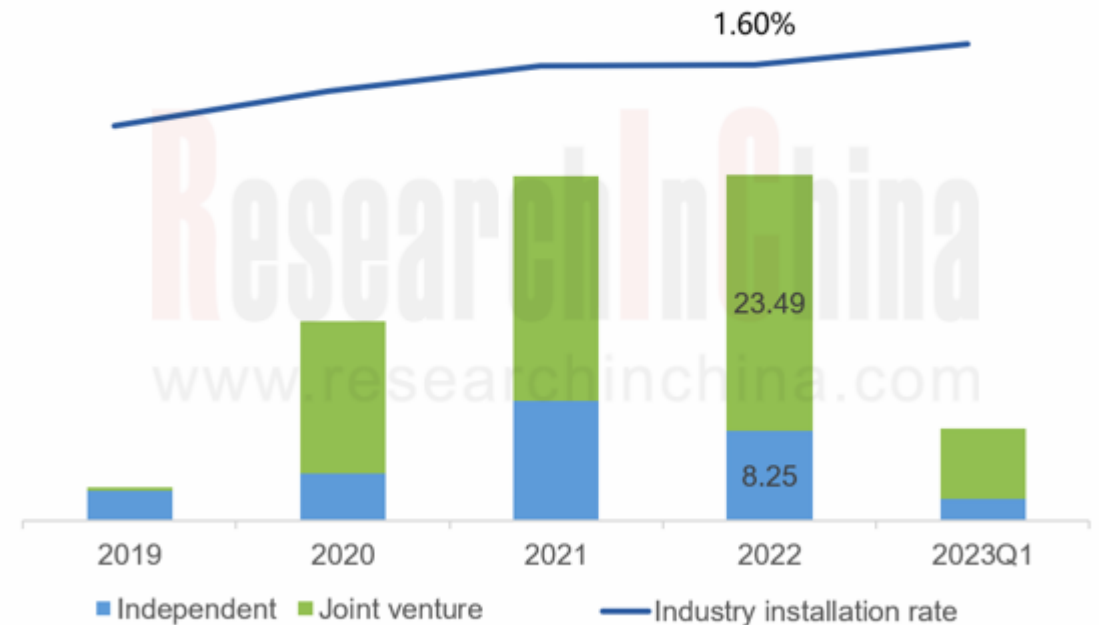
By installation location, electronic rearview mirrors can be divided into electronic interior rearview mirror (i.e. streaming rearview mirror) and electronic exterior rearview mirror (i.e., camera monitor system, CMS). The "Motor Vehicles - Device for Indirect Vision - Requirement of Performance and Installation" (GB 15084-2022) will come into force on July 1, 2023. The policy stipulates that electronic rearview mirrors can be installed in Category M and N motor vehicles to replace conventional optical exterior rearview mirrors. The industry has grown out of nothing. This article will provide a respective overview of the streaming rearview mirror and CMS markets.

## Streaming rearview mirror: the installations surge and the market competition intensifies.

In 2022, the installations of OEM streaming rearview mirrors in passenger cars in China approached 320,000 units, and the installation rate was 1.60%; the number of brands installing OEM streaming mirrors rose to 20, compared with 13 in the first five months of 2023.

**Installations & Installation Rate of OEM Streaming Rearview Mirrors in Passenger Car in China (by Chinese Independent/Joint Venture Brand), 2019-2023Q1**

(Unit: 10,000 Units)



Source: ResearchInChina

# Yuanfeng Technology's fourth-generation streaming rearview mirror

In supplier's term, Yuanfeng Technology still maintains its position as the bellwether in the industry, but the CR5 declined in 2023Q1, indicating a fiercer market competition.

Yuanfeng Technology's fourth-generation streaming rearview mirror products remain very superior in imaging time (25ms, <55ms required by regulations), image delay (<50ms, <200ms required by regulations), system minimum frame rate ( $\geq 50$ fps,  $\geq 30$ Hz required by regulations) & display brightness (5500cd/m<sup>2</sup>), high dynamic range (up to 140dB), and self-adaption to high and low light environments. Its products have been installed by Cadillac, Buick, Chevrolet, Hongqi, WEY, Tank, Haval, GAC Trumpchi, GAC Honda, and GAC Toyota among others. Yuanfeng Technology stays far head of its counterparts in installations, having been the sales champion in China for years in a row.

Streaming Rearview Mirror and CMS Products of Yuanfeng Technology



Source: Yuanfeng Technology

## Ranking of China Passenger Car OEM Streaming Rearview Mirror Suppliers by Market Share, 2022 & 2023Q1

佐思汽研 shujubang.com

Ranking of China Passenger Car OEM Streaming Rearview Mirror Suppliers by Market Share, 2022

Rank	Supplier	Market Share
1	远峰科技 Yuanfeng Technology	66.8%
2	GENTEX CORPORATION GENTEX	12.5%
3	WHETRON Whetron Electronics	9.8%
4	ADAYO 华阳通用 ADAYO	4.6%
5	威盛电子 Willing Technology	2.3%
6	/ Others	4.1%

Source: ResearchInChina

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Ranking of China Passenger Car OEM Streaming Rearview Mirror Suppliers by Market Share, 2023Q1

Rank	Supplier	Market Share
1	远峰科技 Yuanfeng Technology	56.2%
2	GENTEX CORPORATION GENTEX	19.8%
3	ADAYO 华阳通用 Whetron Electronics	5.1%
4	WHETRON ADAYO	4.5%
5	威盛电子 Willing Technology	2.2%
6	/ Others	12.2%

Source: ResearchInChina

Source: ResearchInChina

# Camera monitor system (CMS): available to quite a few models within the year, with the implementation of the policy.

On December 29, 2022, the Ministry of Industry and Information Technology (MIIT) released the "Motor Vehicles - Device for Indirect Vision - Requirement of Performance and Installation" (GB 15084-2022) and specified that it will go into effect on July 1, 2023. This means that CMS-enabled models will be legal to be mass-produced and travel on roads in China from July 1, 2023. Some models have been confirmed to pack CMS within the year.

Currently, Lotus Eletre and BAIC Mofang are confirmed to be equipped with CMS within 2023, both of which offer an optional package for consumers. In the case of FORVIA's solution for Lotus Eletre, the CMS adopts 1280×720 LCD with a refresh rate of 60Hz, and supports 15-level brightness adjustment; the camera using water-proof materials can be heated to melt snow, and works with the active safety systems to provide functions like blind spot detection, door open warning, and rear cross traffic assist.

Lotus Eletre



www.researchinchina.com

Source: Lotus

Models Equipped with OEM CMS in China

Category	Brand / Model	Supplier	Optional / Standard CMS	Product Highlights
Passenger car	Lotus ELETRE	FORVIA	Optional Price: RMB 16000	<ul style="list-style-type: none"> <li>1280×720 LCD supports 15-level brightness adjustment, as well as adaptive adjustment of screen brightness</li> <li>50% more lateral field of view than traditional rearview mirror</li> <li>System integrates blind spot monitoring, door opening warning, rear crossing assistance and other driver assistance functions</li> </ul>
	BEIJING Mofang	Jiangcheng Technology	Optional Price: RMB 9000	<ul style="list-style-type: none"> <li>2-3 times larger field of view than conventional rearview mirrors; a 2% reduction in wind resistance; an about 0.1L decrease in 100km fuel consumption</li> <li>The system supports such functions as larger field of view for turning, automatic anti-glare at night, and automatic tilt-down of the reversing screen (with guide lines)</li> </ul>
	Xpeng Motors	Yuanfeng Technology	Under planning	Under planning
	GAC Aion	/	Under planning	Under planning
Commercial vehicle	Dongfeng Liuzhou Motor H7	/	/	<ul style="list-style-type: none"> <li>The camera supports electric folding</li> <li>Two screens display three zones</li> </ul>
	Shaanxi Auto X6000 Tractor	/	/	<ul style="list-style-type: none"> <li>Automatic brightness adjustment of the display screen</li> <li>Infrared night vision</li> <li>Lane change assist (the display will change color when another vehicle overtakes)</li> </ul>

Source: ResearchInChina

# CMS well outperforms conventional rearview mirrors in the following aspects:

CMS well outperforms conventional rearview mirrors in the following aspects:

- \* All-day working capability, much stronger than conventional mirrors in special scenarios such as high light/dark environment, rain and snow
- \* Adjustable FOV, effectively reducing blind spots
- \* Wind resistance reduction, and improvements in the BEV range / fuel consumption
- \* Video forensics in collision accidents
- \* Combined with driving assistance systems. CMS and ADAS have a high degree of overlap in functions such as blind spot detection. Currently, CMS products from Yuanfeng Technology and Autocruis can integrate steering assist, lane departure warning, side blind spot obstacle avoidance and other driving assistance functions.

There is a high possibility that CMS can share camera modules and controller components with other auto parts, producing good cost reduction effects. (According to the regulation in the GB15084-2022, that "in the case where CMS is used to provide a field of view, the relevant field of view shall be permanently visible to the driver when the ignition switch is turned on or the vehicle master control switch is activated", the display multiplexing is an infeasible way to lower the cost).

In terms of **camera modules**, currently a number of models (e.g., Xpeng G9 and Li L9) with L2+ driving assistance systems pack side cameras. If the CMS can share the camera with ADAS, a portion of the cost can be saved.

In terms of **controllers**, it is more likely that the CMS controller is integrated into the cockpit domain/driving domain. This solution is more in line with the centralization trend of E/E architectures. According to BAIC, the process will take 2 or 3 years.

Although CMS offers big benefits mentioned above, there are still some bottlenecks to be broken before mass adoption in vehicles, including:

- \* High cost poses a higher threshold to buy a car before the components are multiplexed. From the existing models with optional CMS on market, it can be seen that the cost of the optional system for customers ranges between RMB7,000 and RMB16,000. Except the purchase cost, the maintenance cost in later stage also increases.
- \* System reliability in long-term use is guaranteed. CMS plays a crucial role in driving. Compared to conventional mirrors, CMS may crash and have a blank screen, causing a threat to safety driving
- \* Driver's use habits change. In conventional rearview mirrors, the human eyesight is always in the distance, and what the driver sees is always a distant view; in CMS, the driver needs to take eyes back to the near place instead and refocus when observing the screen. The frequent switching of visual focus for a long time makes it easy to cause visual fatigue and affect driving safety.

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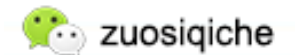
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