



丘鈦科技(集團)有限公司

Q Technology (Group) Company Limited

Stock Code 股份代號 : 1478





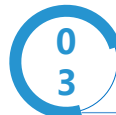
2022 Interim Results Investor Presentation

8 August 2022

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-  **2022 Interim Results Business Review**
-  **Smartphone/IoT/Automotive Business Segments Outlook**
-  **Five-Year Plan**

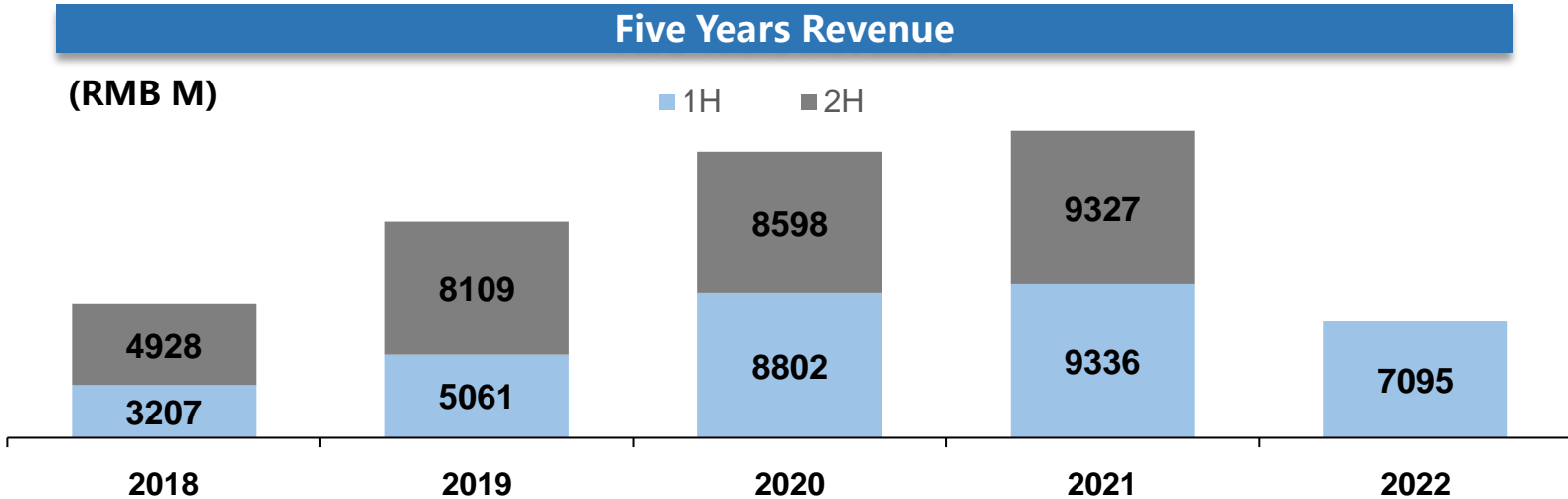
»» Financial Summary



RMB K	1H		YoY Change	2H	
	2022	2021		2021	HoH Change
Phone CCM Sales Volume	211,368K	222,720K	-5.1%	253,640K	-16.7%
Other Fields CCM Sales Volume	1,659K	1,083K	+53.2	1,887K	-12.1%
FPM Sales Volume	50,651K	55,425K	-8.6%	59,157K	-14.4%
Revenue	7,094,787	9,335,841	-24.0%	9,326,785	-23.9%
Gross Profit	375,830	1,082,765	-65.3%	679,217	-44.7%
Gross Profit Margin	5.3%	11.6%	-6.3pts	7.3%	-2.0pts
OPEX Ratio	4.8%	4.4%	+0.4pts	4.5%	+0.3pts
Net Profit/Loss	165,530	570,741	-71.0%	292,105	-43.3%
Net Profit Margin	2.3%	6.1%	-3.8pts	3.1%	-0.8pts
Basic EPS	14.0 cents	48.5 cents	-71.1%	24.7 cents	-43.3%
Operating Cash Flow	400,413	-209,300	N/A	1,805,514	-77.8%



Prolonged Pandemic and Slowdown in Marco-economy Impacted Operating Performance



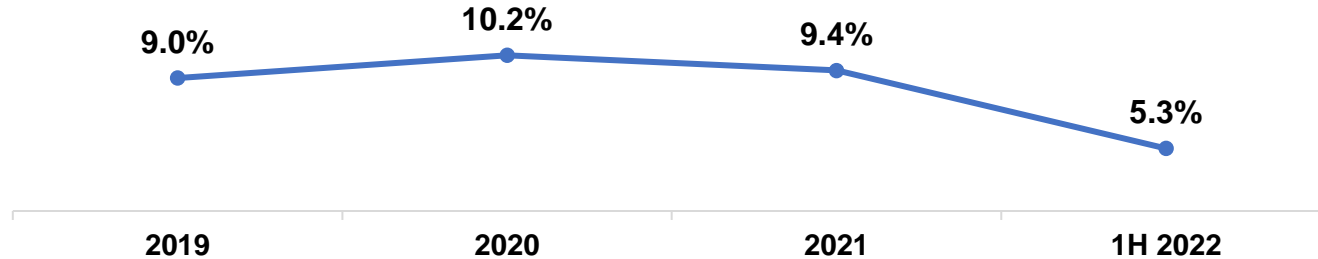
During the Period, revenue of the Group was amounted to approx. RMB 7,095 million, representing a 24.0% decrease y-o-y, mainly attributable to:

- 1) According to a research report released by a third-party research institute, the shipment of global smartphone was declined by 10% y-o-y in 1H2022. According to the official data of MIIT, Shipment of Chinese smartphone decreased by 21.7% y-o-y in 1H2022. The shrinking demand of CCM and FPM adopted in smartphone intensified competition and caused the Group's sales volume of CCM and FPM decreased by 4.8% and 8.6% respectively.
- 2) The short-term slowdown in smartphone innovation has intensified competition in the smartphone CCM market, and there were large downward pressures on the ASP of products. During the Period, the ASP of CCM decreased by approx. 18.7% y-o-y to approx. RMB30.5 from approx. RMB37.5 of the Corresponding Period; the ASP of FPM also decreased by approx. 34.3% y-o-y to approx. RMB 10.9 from approx. RMB 16.6 of the Corresponding Period.

»» Gross Profit Margin Affected Temporarily



GPM Trend Analysis

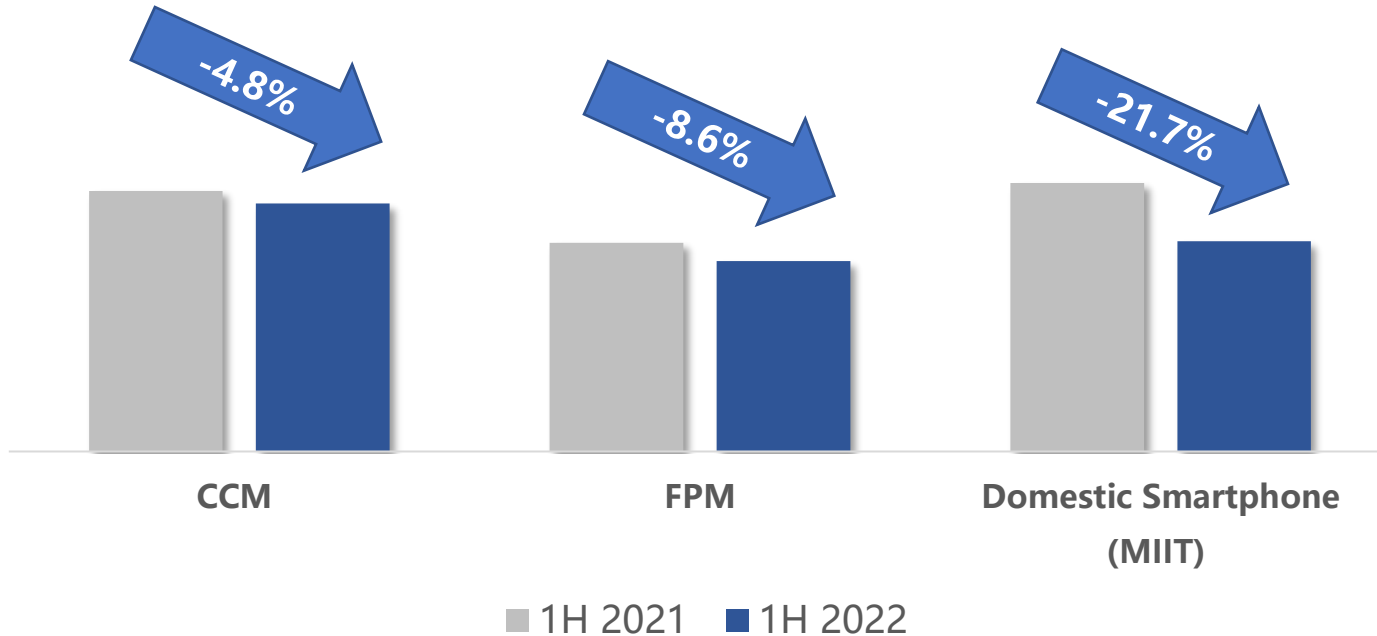


During the Period, the Group's gross profit margin was approximately 5.3%, decreasing by approx. 6.3 pts from approximately 11.6% of the Corresponding Period. Such decrease is mainly due to (i) Customer mix adjustment and certain customer collaboration was still in developing stage, the proportion of the Group's sales volume of 32M and above high-end smartphone CCM decreased by approx. 4.4 pts from approx. 32.0% of the Corresponding Period to approx. 27.6% (ii) due to the decline in downstream demand and the disruption in logistics due to the outbreaks of COVID-19 in multiple China cities during the Period, the utilization rate Group's production capacity dropped significantly; (iii) the Group actively responded to the government's call and implemented pandemic prevention and control measures, and effectively prevented the spread of the COVID-19 pandemic through efficient and strict pandemic control, which also increased production costs; (iv) due to the shortage in upstream chip production, the price transmission of key raw materials CMOS image sensor chips has not yet been in place, and the procurement cost has not decreased in the same proportion; (v) in the first quarter of 2022, the labor shortage around CNY and the increase in local minimum wage standards and the minimum social security payment ratio in Suzhou have resulted in an increase in unit labor costs; and (vi) the Group has strategically increased customer development efforts for businesses such as IoT and automotive camera modules, but the GPM was low because the product were in the early stage of development and has not yet formed economies of scale.

Customer Strategies Work out well, the y-o-y decline in CCM and FPM Shipment were Lower than that of Domestic Smartphones



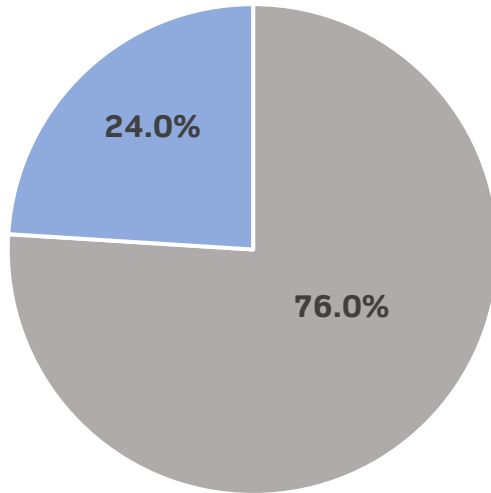
YoY Comparison Products Shipment VS Domestic Smartphone Shipment



»» Higher Contribution from New Customers

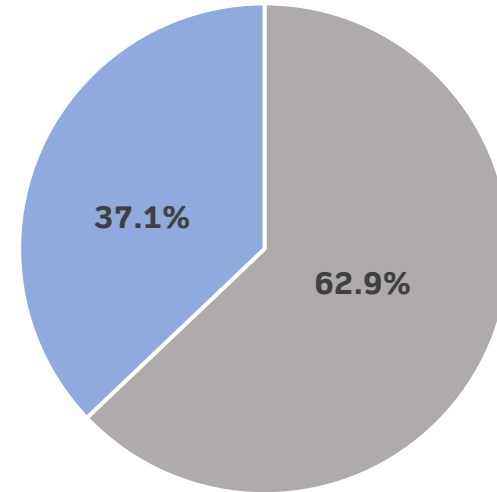


Customer Mix in FY 2021





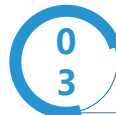
■ Top 4 Chinese Brands ■ Others

Customer Mix in 1H 2022



■ Top 4 Chinese Brands ■ Others



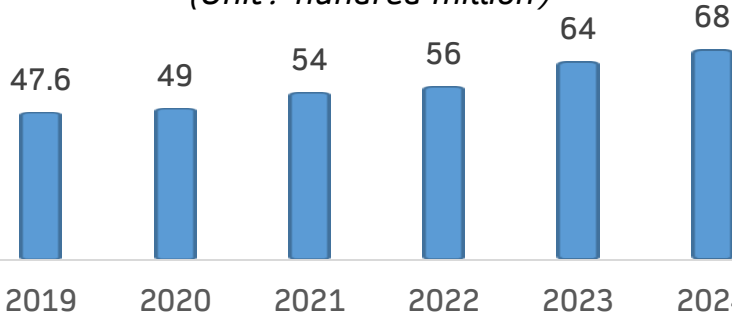
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»» Strong Demand Growth in Three CCM Applications



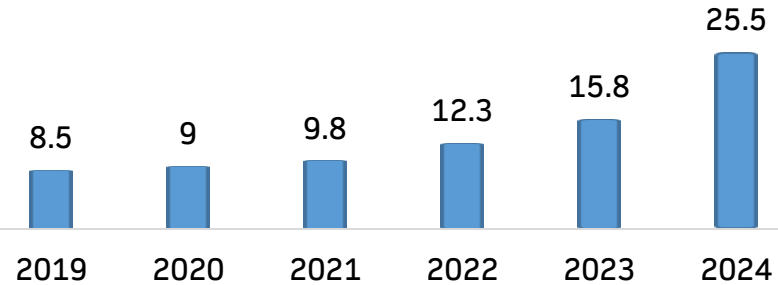
Mobile Phone CCM TAM in Unit Sales

(Unit: hundred million)



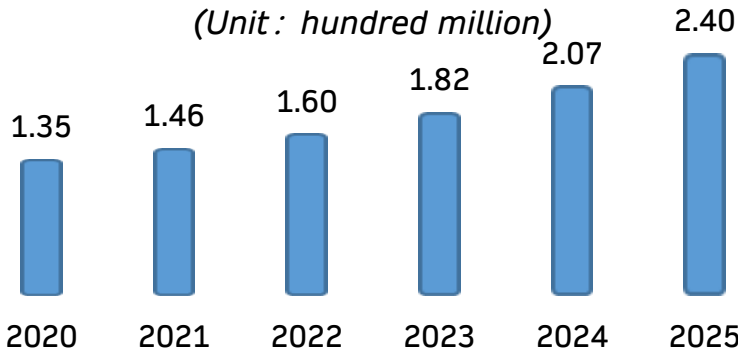
IoT CCM TAM in Unit Sales

(Unit: hundred million)



Auto CCM TAM in Unit Sales

(Unit: hundred million)



Market Size Forecast:





- TAM of CCM in mobile phone: > RMB 200 billion
- TAM of CCM in automotive: > RMB 100 billion
- TAM of CCM in IoT: > RMB 100 billion

Smartphone CCM Specs Upgrade Continues

SLR: Wide-Angle








1/1.5" 1/1.1" 1"

	1/1.5", 108M, 0.7um
	1/1.5", 50M, 1.0um
	1/1.3", 50M, 1.2um
	1", 50M, 1.6um

- **Large chip size:** Hi-res/ Night shot
- **Same chip size w/more pixel, more pixel w/smaller chip size**
- **Large aperture:** 8P Lens, G+P lens (MLAA)
- **OIS:** Sensor Shift, Dual-OIS
- **Miniature:** MOC, Pop out

SLR: Ultra Wide Angle



	1/2.93", 12M 6P, 120° f/2.2
	1/2.76", 50M, 6P, 122° f/2.4
	1/2.76", 50M, 6P, 150° f/2.3
	1/1.56", 50M, 7P, 110° f/2.2
	1/1.56", 50M, 7P, 110° f/2.2, Freedom lens

- **Large chip size:** More P lens, fish-eye cam
- **Freedom lens:** Minimum distortion
- **Large degree OIS:** Micro gimble

SLR: Tele



1/4"-1/2.8", 2-3X vertical
1/4.4"-1/2", 3.5X-10X periscope
5x-10x periscope continuous zoom

- **Large chip size large aperture multiple zoom**
- **Dual-zoom:** Vertical imaging zoom + periscope zoom, full range
- **Large chip size large aperture periscope:** Sensor shift, Sensor AF
- **Continuous zoom periscope:** Piezo, Ball type
- **OIS:** Ball type, Hanging wire

Beyond Human Eyes



3D ToF Sensing
Multispectral
Microscope

- **3D ToF:** Low cost, Localize
- **Multispectral:** Spectrum expansion, Color emphasis, low light enhancement
- **Dynamic shots:** RGB+EVS
- **Microscope:** Long range focus

»» Applications & Product Trend

Applications



Night Shot



Portrait



Zoom



Video

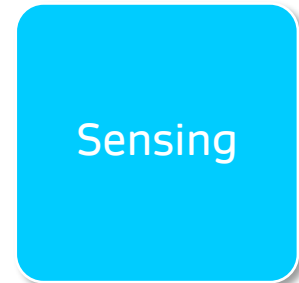
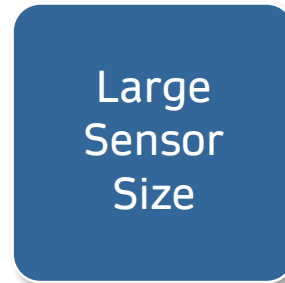


Stabilizing

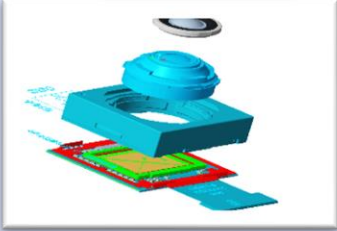
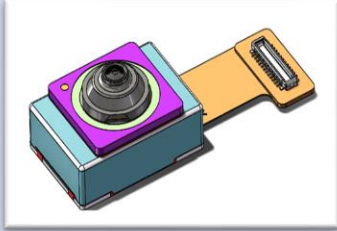
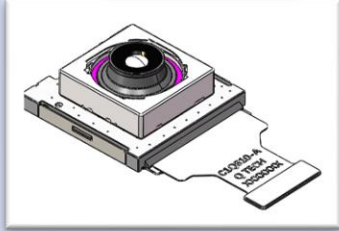


Future

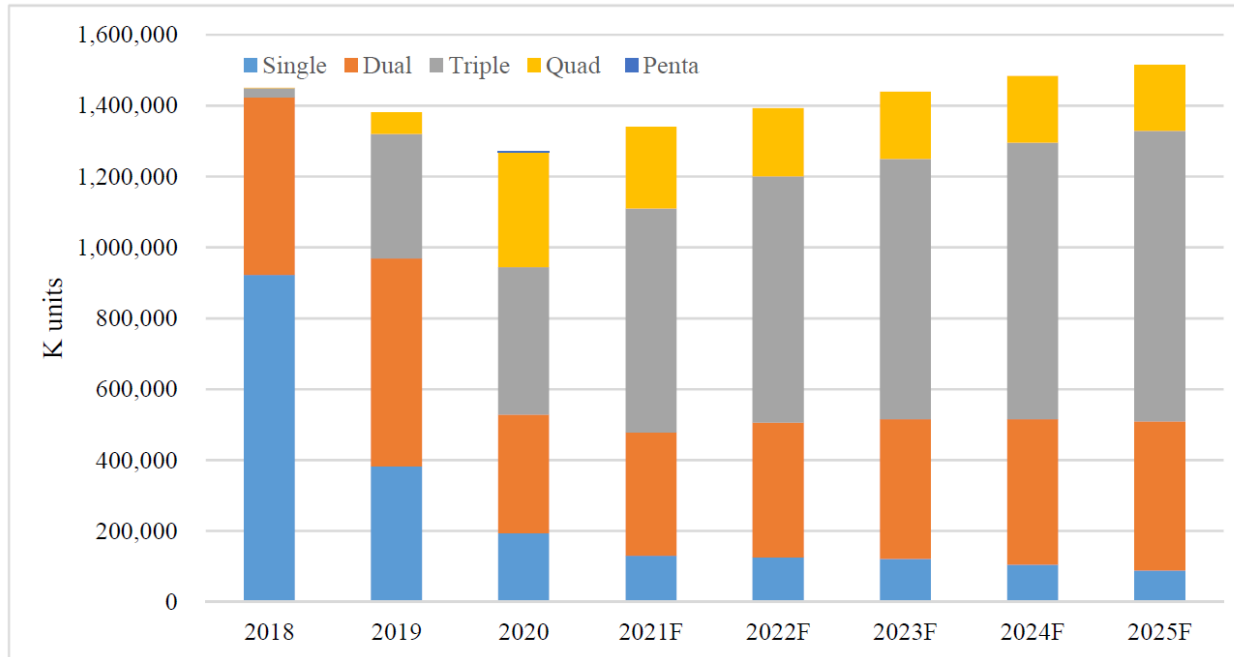
Product Trend



»» Leading Technical Capabilities

	MLAA	Sensor AF	Sensor Shift
			
Specs	Aligning and adjusting multiple groups of lens at the same time to achieve sub-micron high-precision alignment, makes mass production of complex optical solutions possible	Applied electromagnetic drive to push the CIS to move in the Z direction to realize auto focusing function, which has the characteristics of high frequency response and high precision	Applied electromagnetic drive to push the CIS to move in X,Y,ROLL direction, realizing optical stabilizing, enhance the ability of video OIS and Imaging OIS to capture dynamic picture
Goals	Achieve larger aperture, group assembly of high-sensitivity lenses, improve performance and yield	Support large aperture AF function, avoiding “hole-opening” on the mobile display	OIS function is realized by moving the CIS, which directly avoids the problem of lens weight and realizes high-frequency OIS
Q Tech Advantage	Ready for mass production Leading in industry	One of the pioneer Ready for mass production	One of the pioneer, equipped with material design, motor performance simulation capabilities etc., estimated mass production time in 2023

Proportion of Multi-cam Smartphone Continues to Rise



Source : TSR- 《Market Breakdown of Camera Phone- 1st Half 2021 & 2nd Half 2021 Forecast》



- The proportion of smartphones equipped with multi-cam continues to increase, reaching 90.4% in 2021 and 94.1% in 2025
- Triple-cam will become the mainstream, accounting for 33.1% in 2020, 47.2% in 2021, and the proportion will continue to increase after 2022
- Although the trend of adopting quad-cam has slowed down, the ratio of dual-cam and triple-cam continues to grow, and the number of cameras will continue to increase. TSR estimates that by 2024, the global shipment of mobile phone camera modules will reach 6.52 billion. The CAGR compared to 2019 was 6.5%

»» Q Tech Smartphone Customer Strategy



vivo



OPPO



Lenovo



Honor



Protect high market share and focus on cooperation in high-end CCM and R&D in advance production knowhow

Xiaomi



Samsung



Huawei



Google



Strive for cooperation in full range products and overseas expansion strategy

»» Targeted IoT Market Segments

Drone



- ◆ Market: Approx. 5.5M unit sales/year 21-26 CAGR >9%
- ◆ Products: Navigating CCM, Video CCM
- ◆ Customer: DJI

AR/VR



- ◆ Market: Approx. 15M unit sales/year, 21-26 CAGR >35%
- ◆ Products: Head Tracking (6DoF), Video See Through, Pancake Lens, Eye Tracking
- ◆ Qualified Customers: Pico, HTC, OPPO, Black shark, iQiYi

RVC



- ◆ Market: Approx. 15M unit sales/year 21-26 CAGR >10%
- ◆ Products: IR CCM, RGB CCM, ToF
- ◆ Customers: Ecovacs, Roborock

Smart Watch/Others

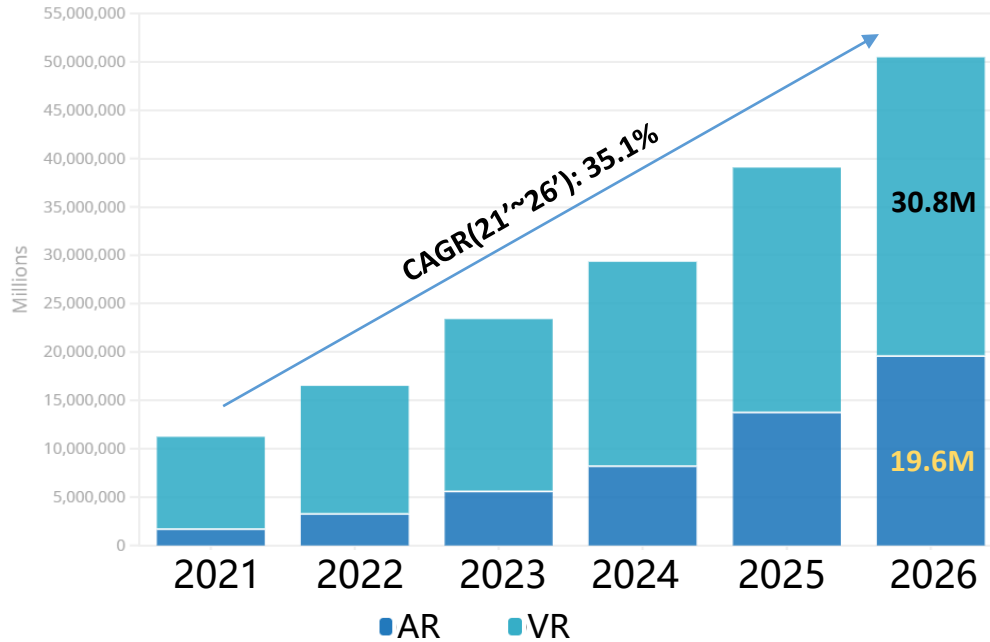


- ◆ Market: Smartphone Watch Video CCM, Streaming Camera, Video Conferencing System
- ◆ Customer: okii

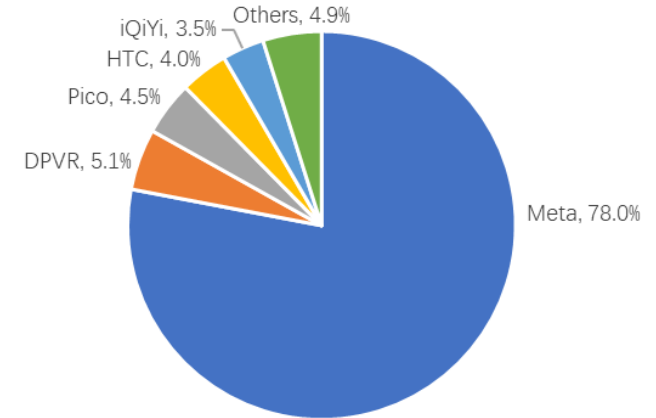
»» Growth of Sales Volume of AR/VR Devices Accelerating Globally



Worldwide AR/VR Headset Forecast, 2021Q4

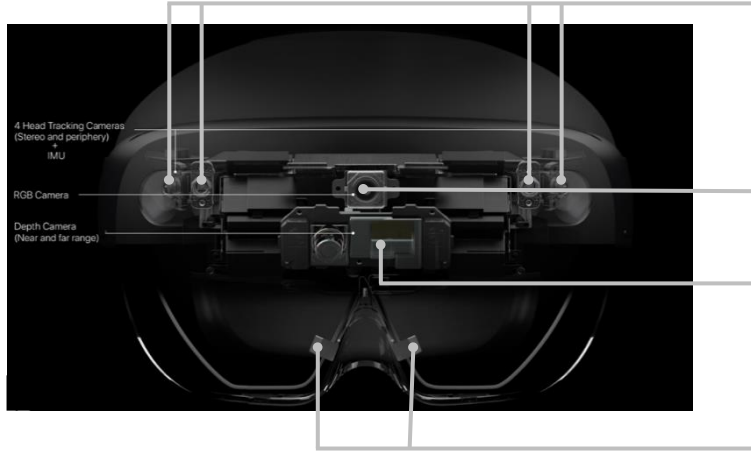


2021 VR Devices Market Share



Data extracted from independent third-party research, for reference only

»» Focus Market of 2022: AR/VR Optics



- **Head Tracking(6 DoF):**
IR above VGA
- **Video See Through:**
8MP and above
- **Depth Sensing**
ToF above VGA
- **Eye Tracking:**
IR + LED

Head Positioning: Algorithms get the position of the device (head) in the virtual environment
Action tracking: Get the handle LED identification point and position **(Units: ≥4)**

Video Capture: Video capture and recording
Environment Capture: Obtain environmental scene information to realize mixed reality **(Units:1-2)**

Gesture Tracking: Track gestures and implement gesture interaction **(Units: 1-2)**

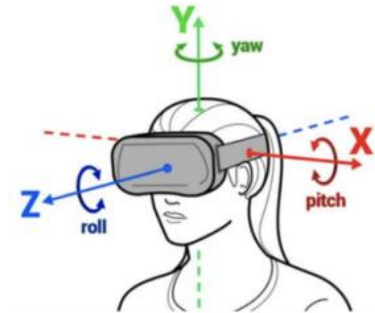
Field of View Conversion: Track the direction of eye movement and convert the content FOV
Eyeball Control: Tracking eye movements, the actual eye movement interaction **(Units: 2-4)**



- **Pancake Lens Module**

2.1"(2280 x 2280)/3P or 2P

Pancake opto-mechanical design to display VR image
Units: 2 (Left & Right)



»» Value Proposition of Q Tech AR/VR Optics



Leverage CCM precision assembly and active alignment capabilities to VR



Total Solution Providers for AR/VR optical solution modules

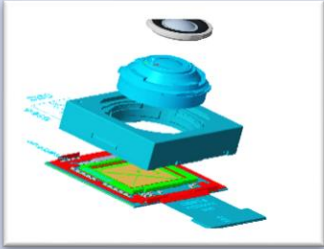
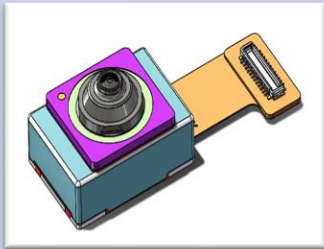
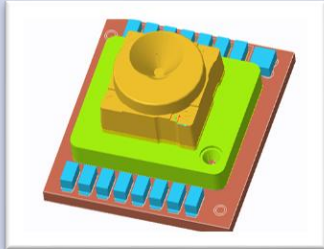
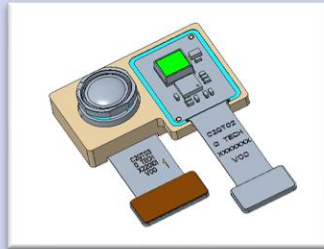


Customized Optical Solutions for AR/VR ODMs and brand customers



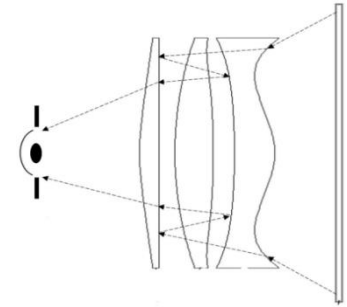
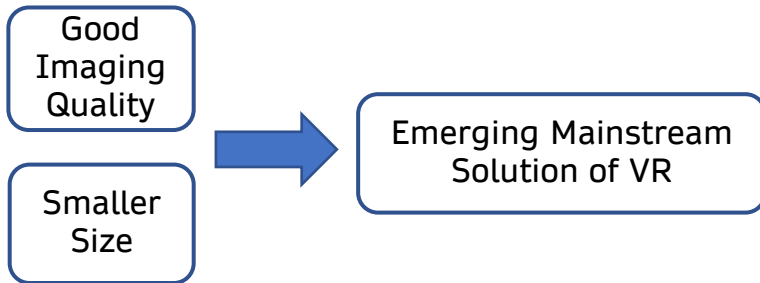
Advanced Optical Design for new generation AR/VR products

»» Full Product Range Offering of VR CCM

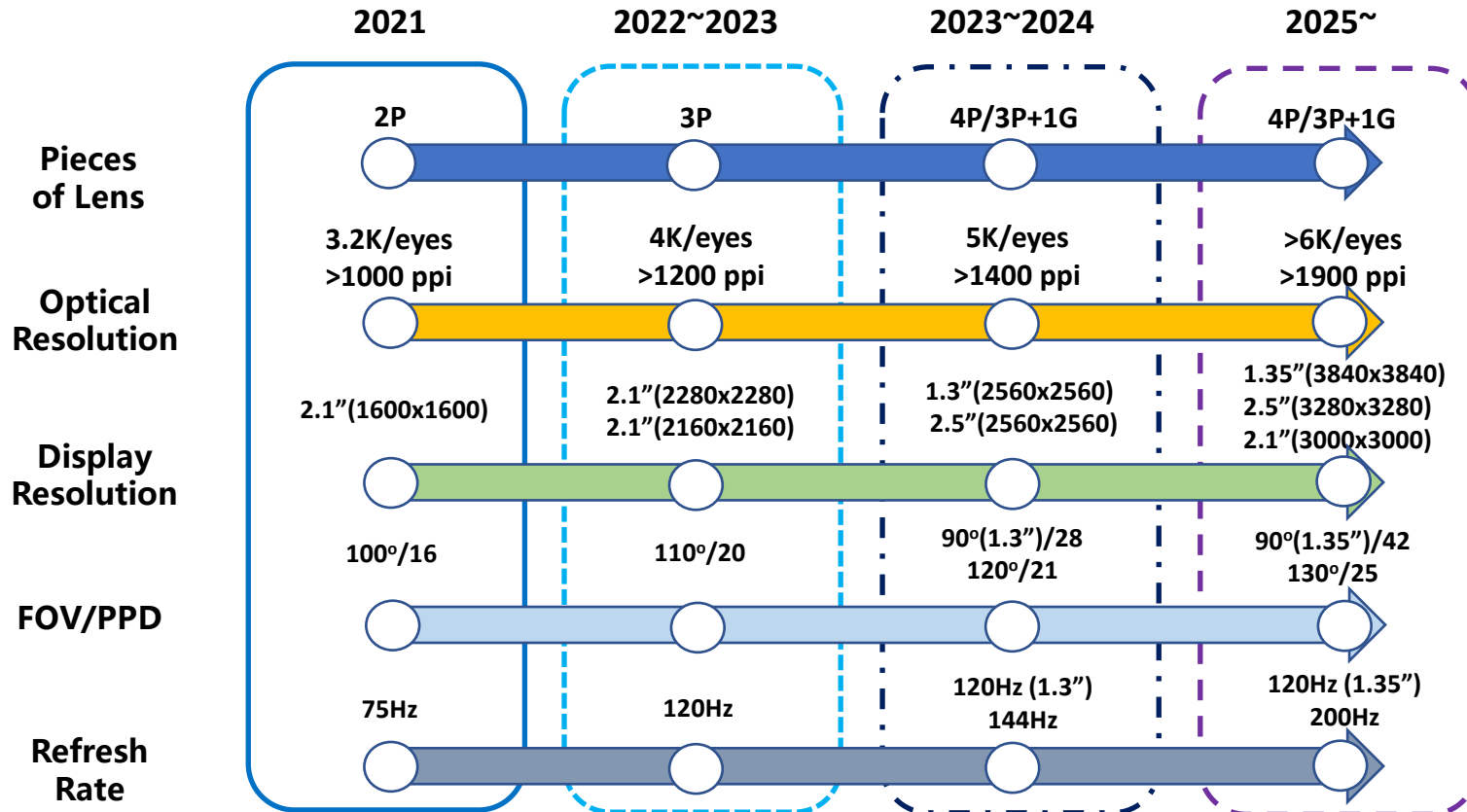
Type	Head Tracking (6 DoF)	Video See Through	Eye Tracking	Depth Sensing
				
Product	1M Module Mass Production	Full Range of Product Offering 8M- 32M	Module Diameter as Small as 3mm. Multiple Application	High Precision and Low Power Consumption. Full Range of DToF/iToF Products Offering
Q Tech Advantage	<ol style="list-style-type: none"> 1. Vertical Integration of the Group's Lens Capability 2. Top-Tier Customer Base 3. Leading Product Design Capability such as Temperature Drift Performance 			

Folded Light Path VR

- Display module adopting Pancake Optomechanical Design. On the premise of the same optical path, the height of imaging unit is compressed.
- Pancake lens leverage on the properties of polarized light to fold the light path inside the lens to realize an ultra-thin imaging lens in VR

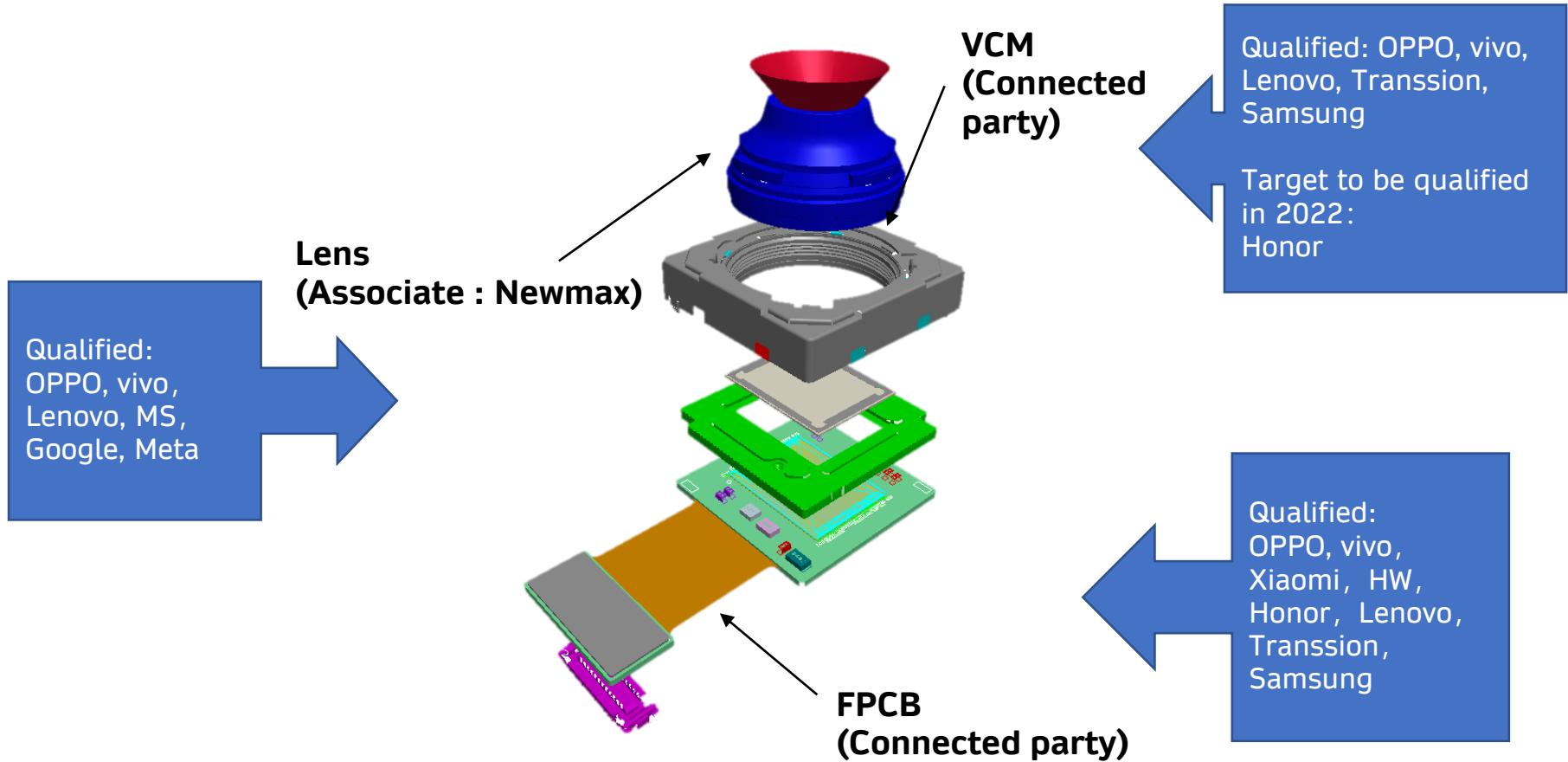


»» Pancake Lens Technology Roadmap



- Q Tech solution has the advantages of smaller diameter and wider FOV under the premise of achieving the same opto-mechanical visual effect. Since the VR headset is equipped with only two Pancake Lens, the overall space can be smaller, which is in line with the principle of light, thin and small
- In addition, the Flare of Q Tech pancake lens is smaller, the center to edge resolution is good and the overall optical performance is better

»» Improve the Quality of Vertical Integration

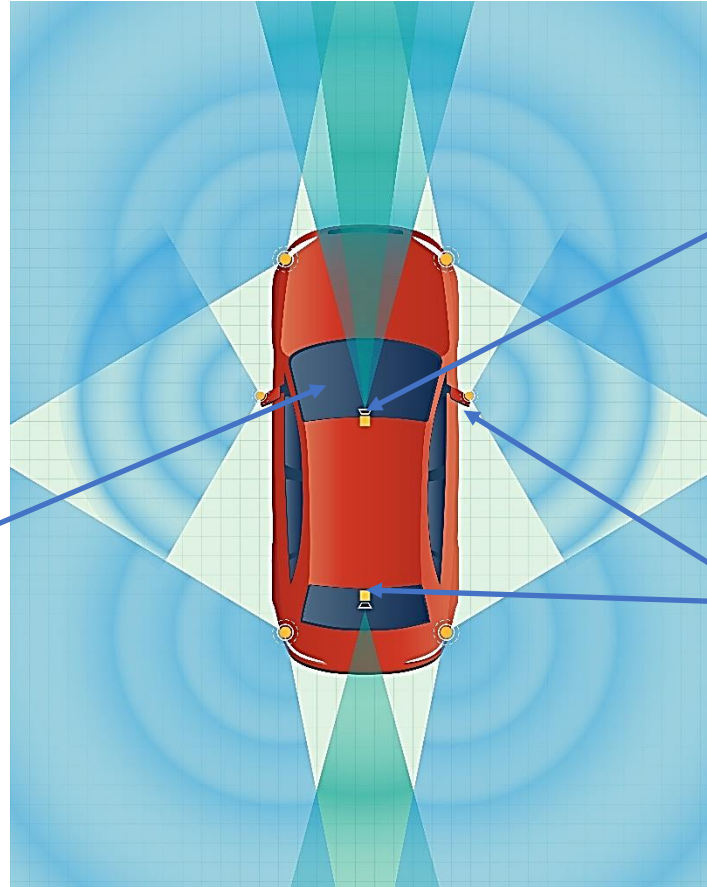


»» Focus on Three Major Trends of Automotive CCM

02

DMS/OMS Camera

- ◆ Fatigue Tracking
- ◆ Sight Tracking
- ◆ Emotion Tracking
- ◆ FACE ID
- ◆ Behavior Monitoring



01

ADAS Camera

- ◆ Signal Light and Sign Recognition
- ◆ Pedestrian Recognition
- ◆ Collision Warning
- ◆ Lane Departure Warning
- ◆ AEB Security

03

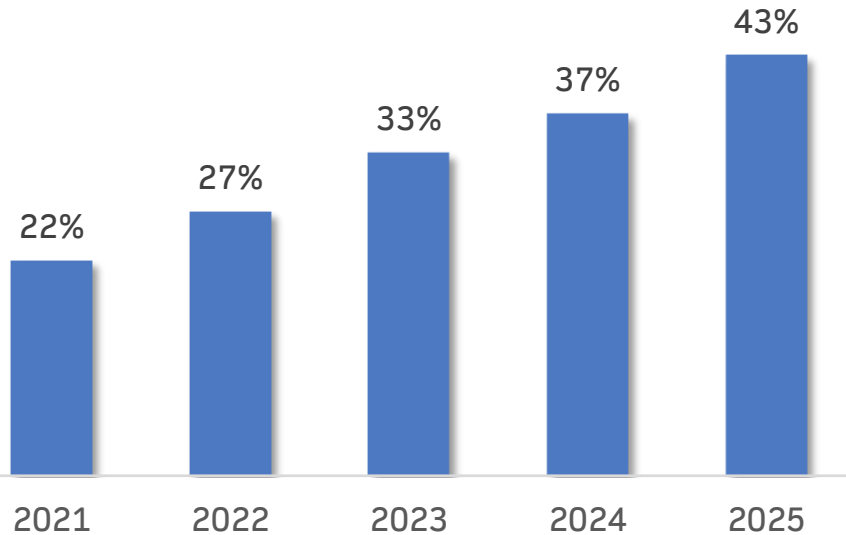
Main Body Camera

- ◆ Surround View
- ◆ APA Auto Parking
- ◆ Blind Spot Detection
- ◆ Lane Change Assistance
- ◆ Electronic Rear-View Mirror

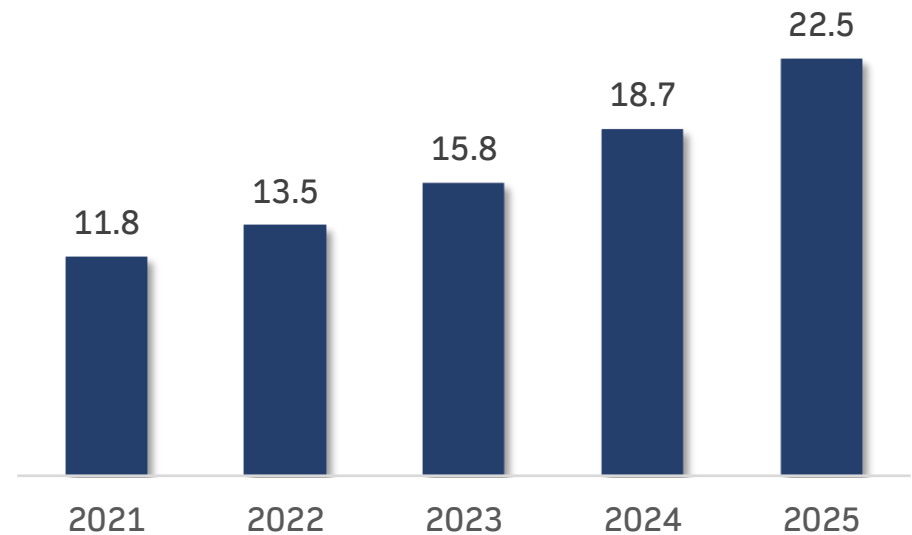
Intelligent Driving must Drive up the Demand of CCM Massively



L2 AND ABOVE VEHICLE IN CHINA



TTM OF AUTOMOTIVE CCM (RMB billion)



*Information is sourced from independent research institution without Company's verification, for reference purposes only

- According to CAAM forecast, ADAS market size of China grew at CAGR 50% in the last five years
- ADAS market is evolving from L2 to L3-L4, favourable policy and the push from new wave automakers may bring a tipping point to the industry
- Sales of new EV brands in China grew faster since May 2022. NIO, Xpeng, Li, NETA, Leap motor all exceeding 10,000 monthly unit sales, some of them grew more than double y-o-y



Short to Medium Term Strategy of Q Tech

Automotive CCM Business



Precise Positioning

Positioning as a hardware manufacturer for module packaging and testing in early stage is more conducive to the company's cooperation with Tier-1 suppliers such as Continental, Neusoft, Black Sesame, and Maxieye

Multiple Product Offering

Leverage on the Company's accumulation in optics, module and calibration capabilities, actively develop other sensing modules such as Lidar modules, millimeter-wave radar modules, etc

Swiftly Investing

Building capability of product design customization, delivery, quality control, etc. As of June 30, 2022, the company's vehicle camera module production capacity has reached 2KK/year

Resources Consolidation

One of the earliest manufacturers using COB technology for CCM packaging and testing in China. It has built a solid supply chain, comprehensive management systems and processes, advanced IT systems and large-scale production capabilities

»» Execution Plan of Automotive CCM BU



Scale Up Production + Capability Enhancement

**Focus on Tier-1
customer acquisition**

**Focus on qualification
with automakers**

**Multi products per
Vehicle**

Customer

Enhance R&D

**Enhance supply
chain management**

**Enhance project
management**

**Capacity
expansion, fully
automated
production**

**Secure M&A
opportunities
and improve
technology
capability**

Capability

»» Fully Automated Production Line for 8M ADAS CCM



»» Successful Projects in Vehicle CCM



Xpeng P5



Xpeng G9



ZEEKR 001



LYNK 09



SMART



VOYAH
H53



SAIC ES33



Changan ES33



LOTUS
Lambda

Successful Projects



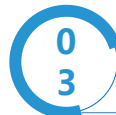
»» Operational Objectives in 2022 (Updated)

Goals of 2022



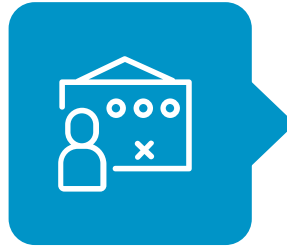
- Sales volume of CCM in other fields grow not less than 100% YoY
- Sales volume of mobile phone CCM declined not more than 5% YoY
- Sales volume of FPM declined not more than 5% YoY



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Innovation, Expansion, Integration, Balance

New Process, New Material, New Product
Driven by R&D and production innovation



Local and Overseas Production Bases

Steady expansion in production scale and product offering

Balance Strategy for Development and Risk
Optimize internal resource allocation and business structure



Vertical Integration

Accelerate integration of upstream and downstream supply chain to build the edge as total intelligent vision solution provider



Industry Positioning

To rank Top 2 in terms of sales volume of CCM in China, Top 2 in terms of sales volume of FPM in China and comparable to the scale of major peer and Top 5 in terms of sales volume in automotive CCM



New Segments

To pursue progress in the new segments such as automotive, AR/VR, smart home and target a quarter of revenue contribution coming from these new segments



Vertical Integration

With module packaging and testing as the cornerstone, reach out and further integrate with upstream/downstream supply chain for the purpose to provide leading total intelligent vision system solution



丘鈦科技(集團)有限公司

THANKS

给 机 器 带 来 光 明