

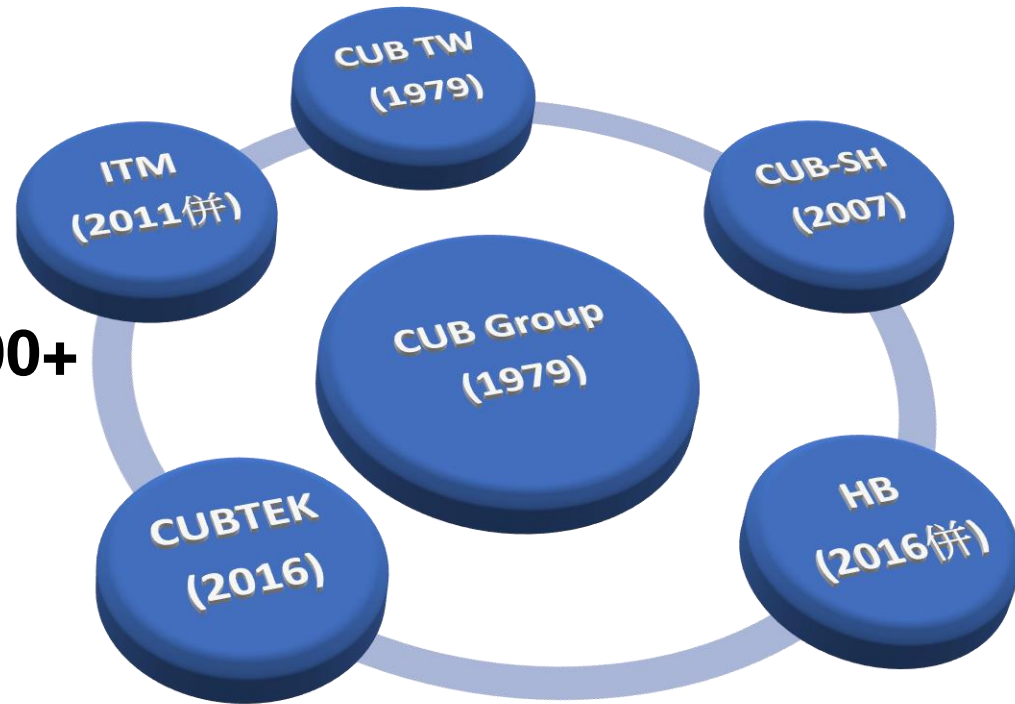
# **CUB ELECPART INC.(2231)**

## **為升電裝工業**



# **ADAS SOLUTION**

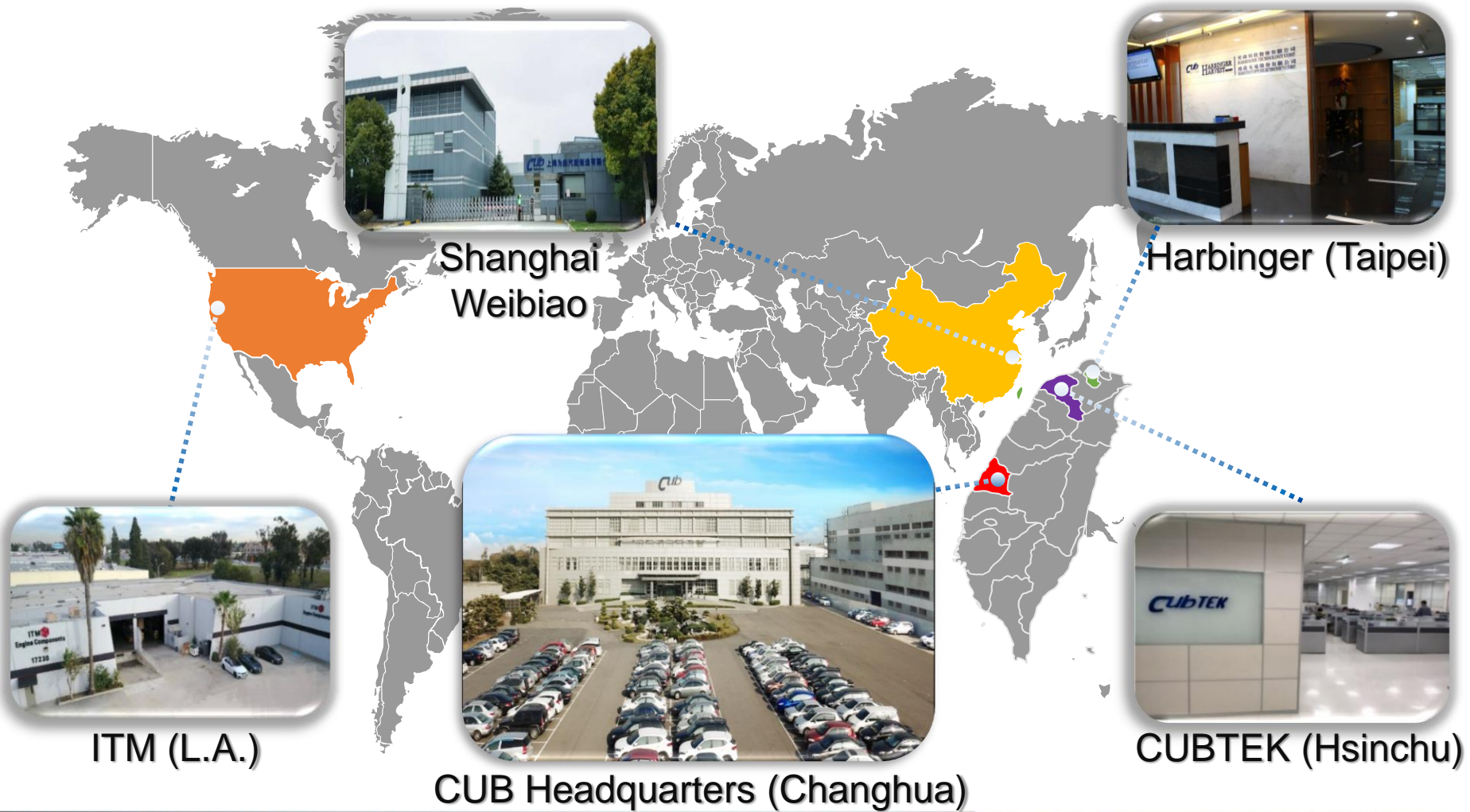
- Established: 1979
- IPO: 2010
- Stock Symbol: 2231
- Capital : NT\$ 1.012B
- CEO: Mr. S.C. Yu
- Number of Employees:800+





# CUB Group

**CUB**  
Genuine Parts



[www.cubautoparts.com](http://www.cubautoparts.com)



# Product Roadmap



**Transportation Communication System**  
道路通訊系統

**Fleet Security Management System**  
車隊安全管理系統

**Internet of Vehicle System**  
車聯網系統



★ **Switch**



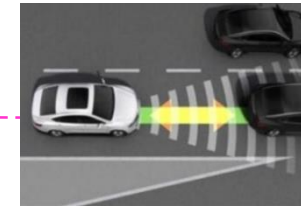
**Sensor**



★ **TPMS**



**24GHz,77GHz Radar**



**Driverless**

**Total ADAS Solution**

★ **The Best Universal  
TPMS Solution  
in World Wide**

★ **Leading ahead  
in Cross-Strait  
Market**

**Top 3 in World Wide  
Competition**

**1979**

**2007**

**2016**

**2019**

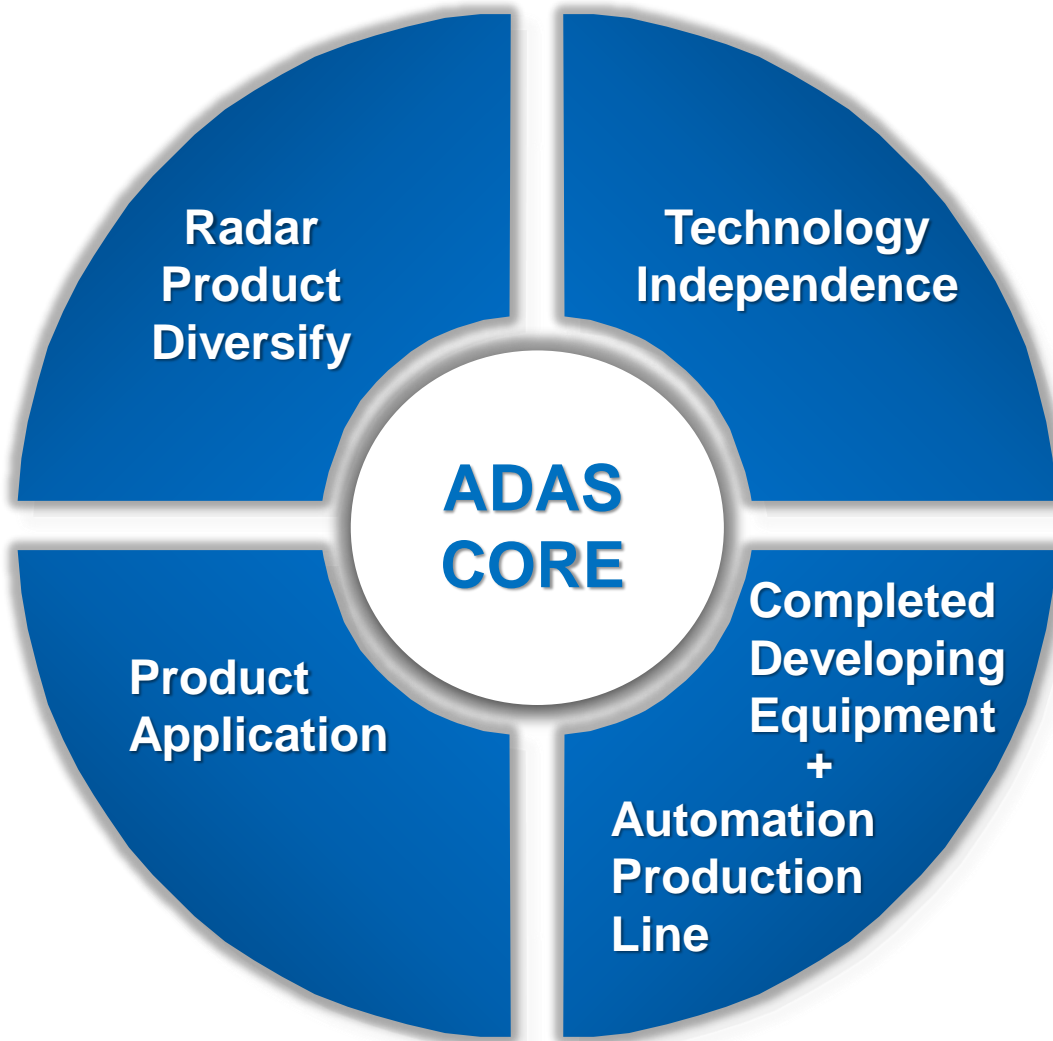


# Financial Statement (2012~2017)

| Currency: NTD 1,000   | 2012      |     | 2013      |     | 2014      |     | 2015      |     | 2016      |     | 2017<br>(Announced) |     |
|---|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|---------------------|-----|
|   | Amount    | %   | Amount    | %   | Amount    | %   | Amount    | %   | Amount    | %   | Amount              | %   |
| <b>Net Revenue</b><br>銷貨收入  | 1,338,240 | 100 | 1,498,942 | 100 | 2,155,184 | 100 | 2,822,080 | 100 | 3,416,549 | 100 | 3,520,466           | 100 |
| <b>Gross Profit</b><br>營業毛利   | 517,085   | 39  | 646,850   | 43  | 1,086,876 | 50  | 1,562,163 | 55  | 1,854,911 | 54  | 1,874,618           | 53  |
| <b>OP Expenses</b><br>營業費用  | 215,642   | 16  | 234,544   | 16  | 265,874   | 13  | 313,049   | 11  | 499,848   | 15  | 572,666             | 16  |
| <b>OP Profit</b><br>營業利益  | 301,443   | 23  | 412,306   | 27  | 821,002   | 37  | 1,249,114 | 44  | 1,355,063 | 39  | 1,301,952           | 37  |
| <b>Profit before tax</b><br>稅前盈餘                                    | 294,335   | 22  | 430,804   | 28  | 880,519   | 39  | 1,303,897 | 46  | 1,341,336 | 39  | 1,153,171           | 33  |
| <b>Profit Attributable to Shareholders of the parent</b><br>本期淨利-業主 | 248,914   | 19  | 363,841   | 24  | 745,253   | 33  | 1,120,274 | 39  | 1,115,580 | 32  | 1,011,821           | 29  |
| <b>EPS (元)</b><br>基本每股盈餘  | 4.13      | -   | 6.00      | -   | 10.43     | -   | 13.45     | -   | 12.14     | -   | 10.00               | -   |
| <b>Capital</b> 資本額  | 603(M)    |     | 605(M)    |     | 723(M)    |     | 833(M)    |     | 919(M)    |     | 1,012(M)            |     |







# Diversified Radar Products

## ● 24GHz Millimeter Wave Radar

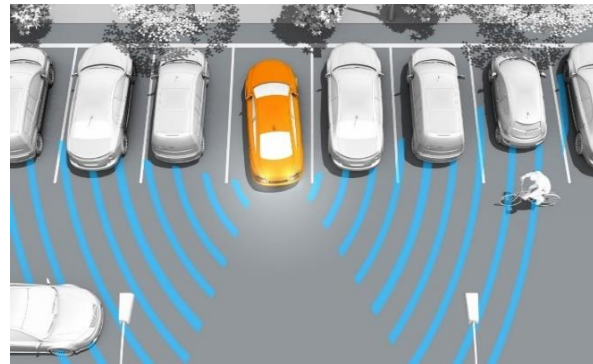
**BSD- Blind Spot Detection**

**RCTA- Rear Cross Traffic Alert**

**DOW- Door Open Warning**



BSD



RCTA



DOW



# Diversified Radar Products

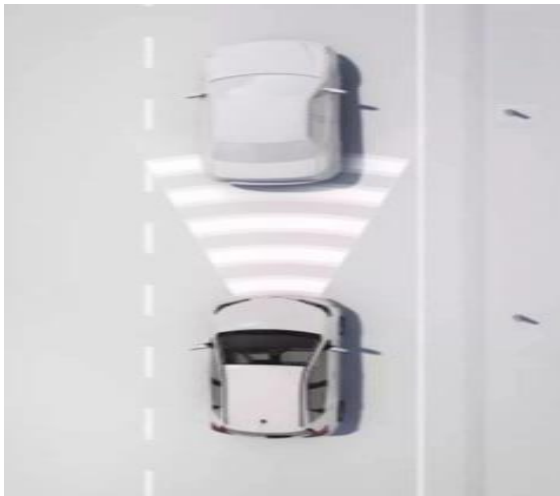
## ● 77 GHz Millimeter Wave Radar

FCW-Forward Collision Warning

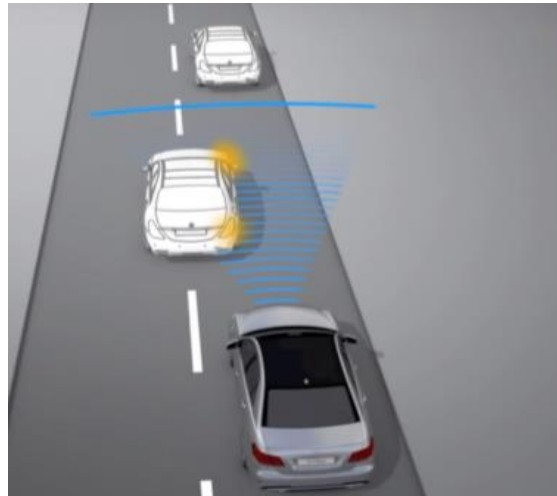
AEB-Autonomous Emergency Braking System

ACC-Adaptive Cruise Control

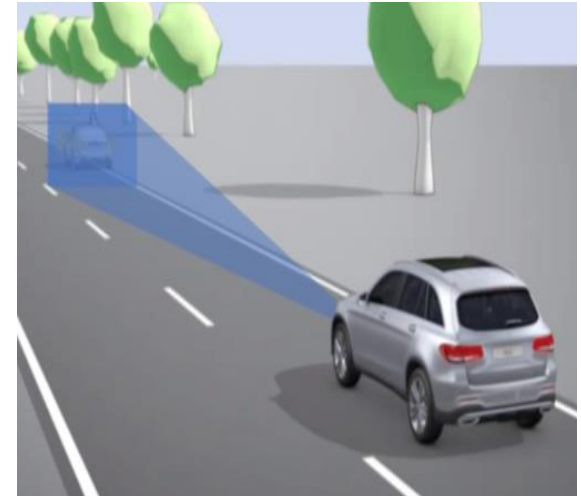
Stop-and-go



FCW Detection mode



FCW- Wide-angle detection mode

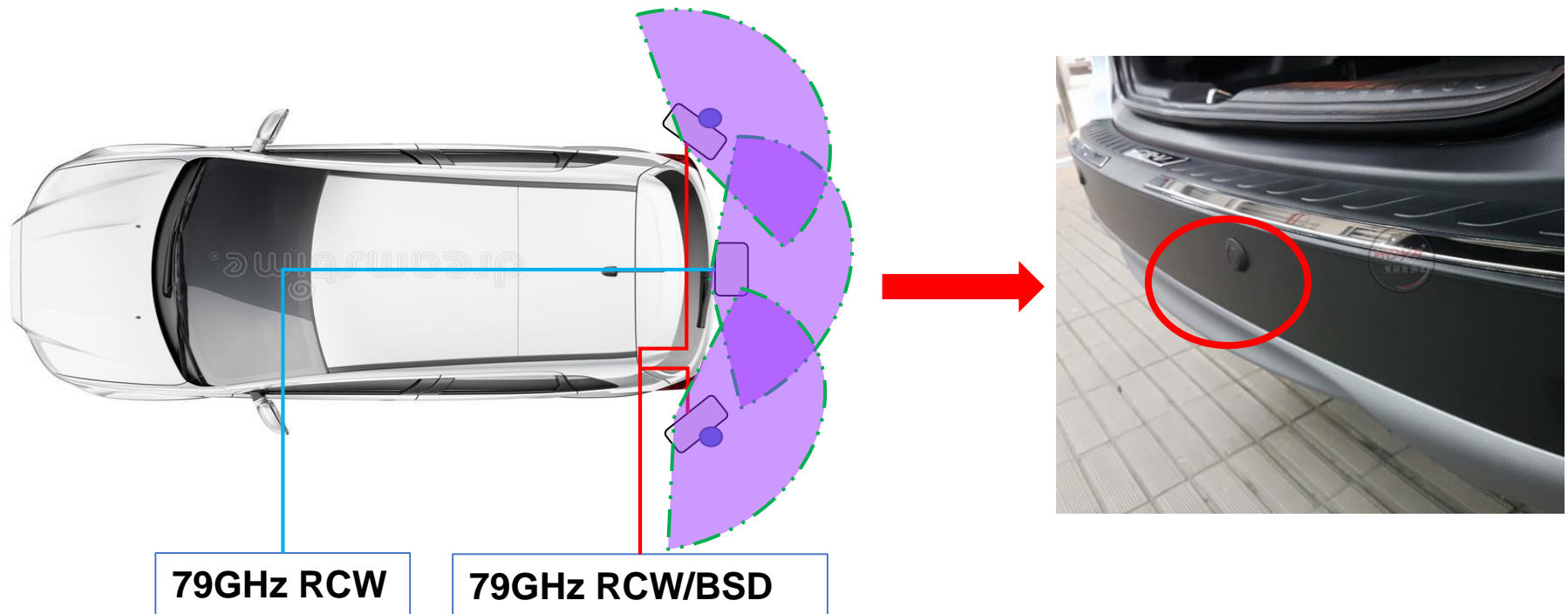


FCW- Altimetry mode

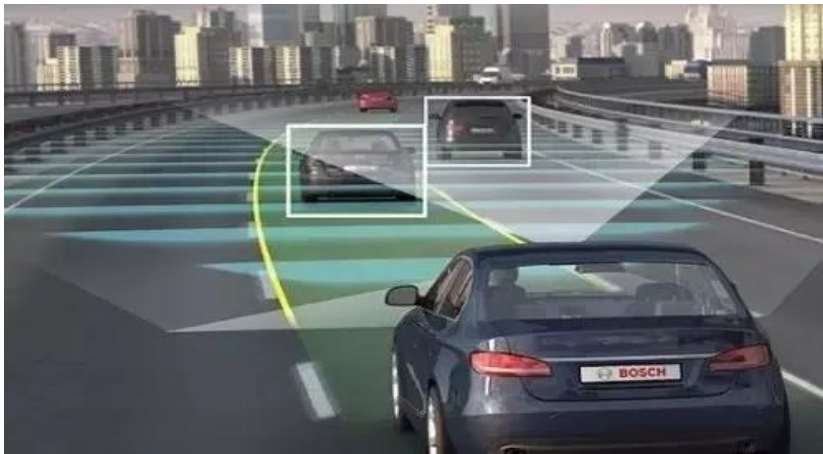




## ● 79GHz Radar New Technology Introduction



## ● Radar Integrated with Camera (FCW+LDW)



**Radar Integrated with Camera**

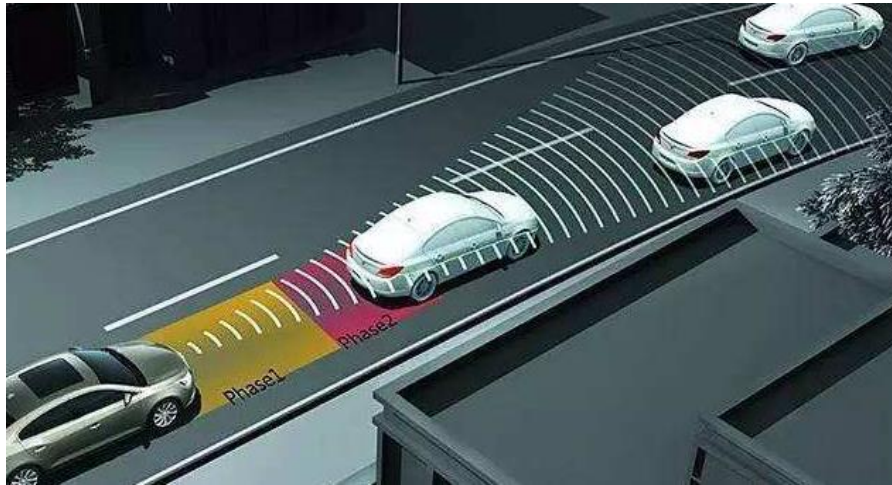


**Interface of Display**

## ● AEB & ACC

**AEB-Autonomous Emergency Braking System**

**ACC-Adaptive Cruise Control**



**ACC**

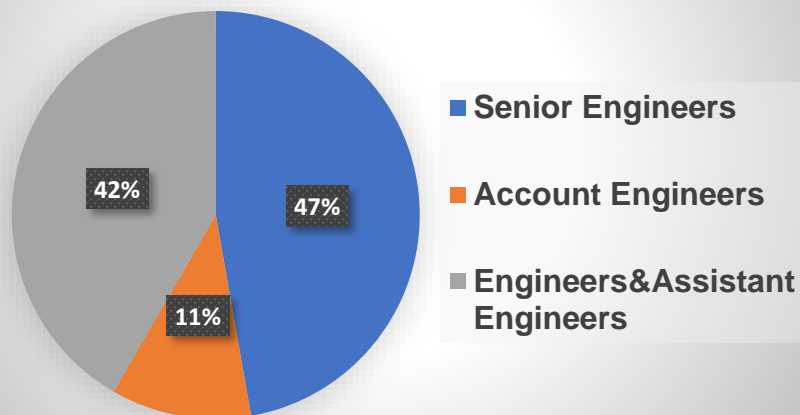


**AEB**



## ● Professional RD Team

Team Member Seniority Allocation

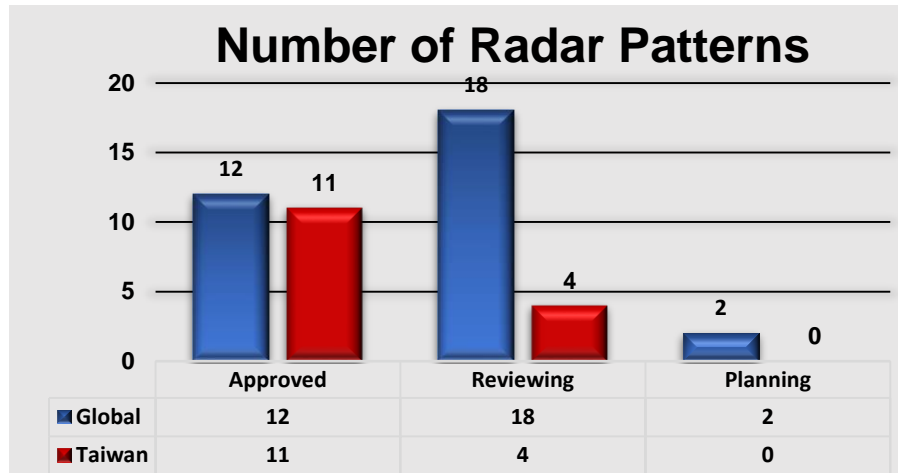


| Function      | Engineer Number |          |
|---------------|-----------------|----------|
|               | Taiwan          | Shanghai |
| Hardware      | 19              | 2        |
| Software      | 17              | 2        |
| Algorithm     | 20              | 2        |
| Mechanical    | 8               | 6        |
| Manufacturing | 11              | 5        |
| PM            | 5               | 5        |
| Total         | 80              | 22       |



# Technical Independence

## ● Technical Independence Plus Robust Customized Capability



| Status    | Pattern Type | Q'ty |
|-----------|--------------|------|
| Approved  | New type     | 9    |
|           | Invention    | 3    |
| Reviewing | New type     | 3    |
|           | Invention    | 15   |
| Planning  | New type     | 0    |
|           | Invention    | 2    |



## ●State-Of-The-Art Equipment



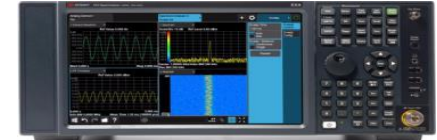
頻譜分析儀



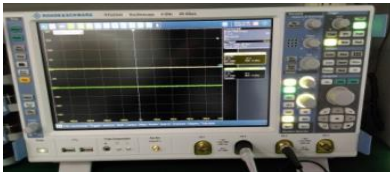
網路分析儀



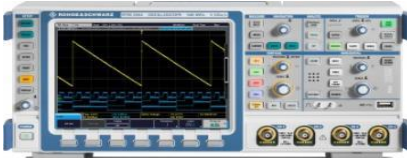
微波類比訊號發動機



信號分析儀



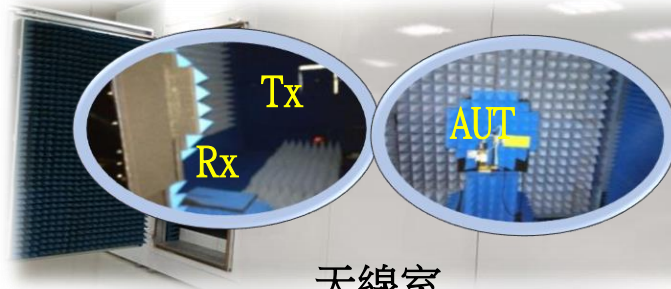
R&S RTO 數字振盪器



R&S RTM 數字振盪器



ARTS 雷達模擬器

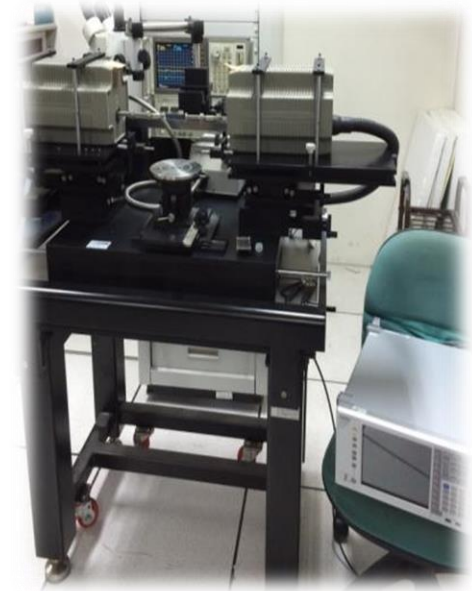


天線室

L7xW3xH3 (m)



HFSS 工作站



晶圓毫米波探測站



# Completed Developing Equipment & Automation Production Lines

## ●Automation Radar Production Lines for Both TW/SH

### Taiwan

- ▶ Automation Production Lines x1
- ▶ Capacity : 80Kpcs/ month

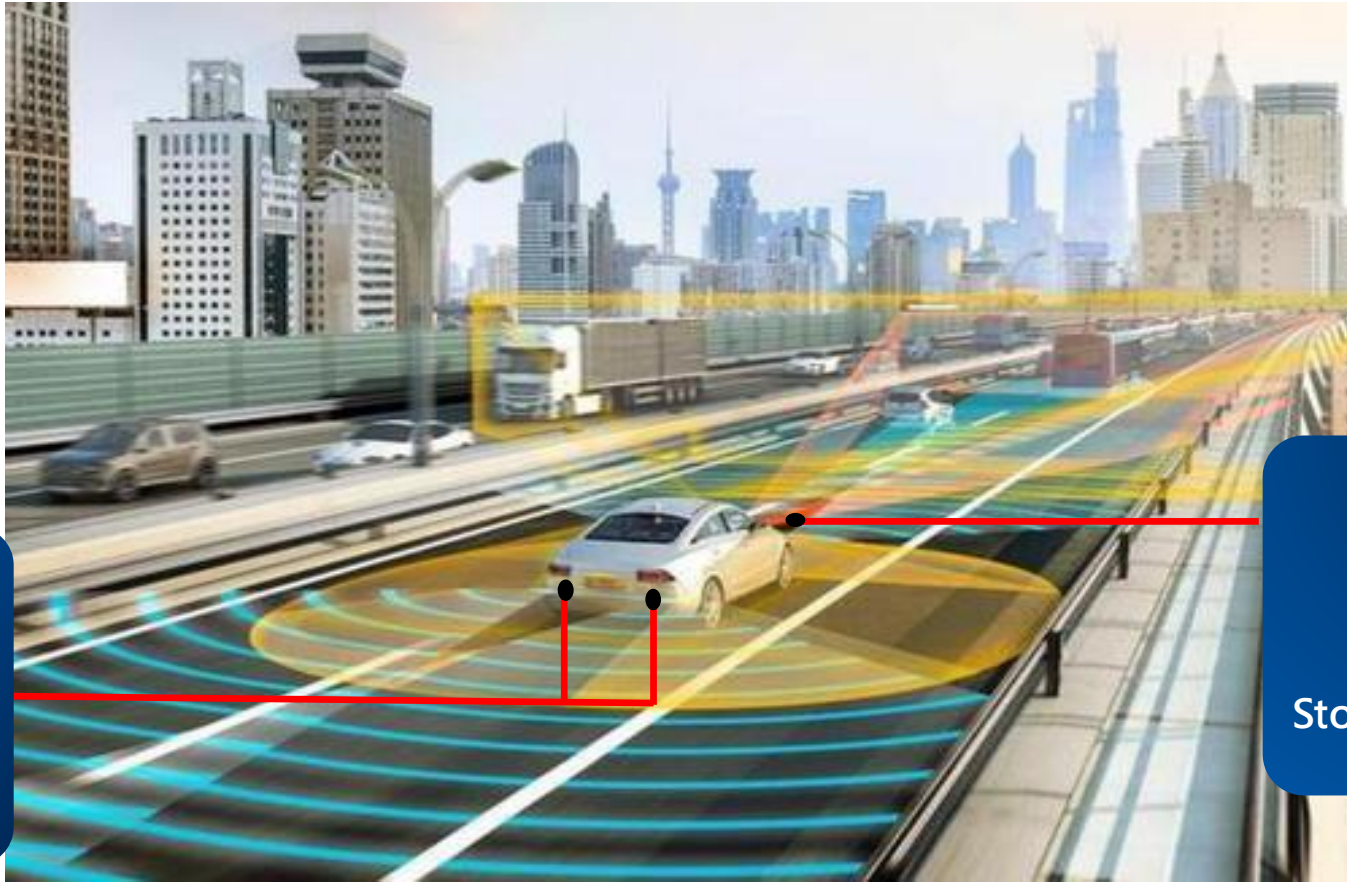
### Shanghai

- ▶ Automation Production Lines x1
- ▶ Capacity : 80Kpcs/ month



# Radar Application Field

## ● Application for Automobiles -OEM



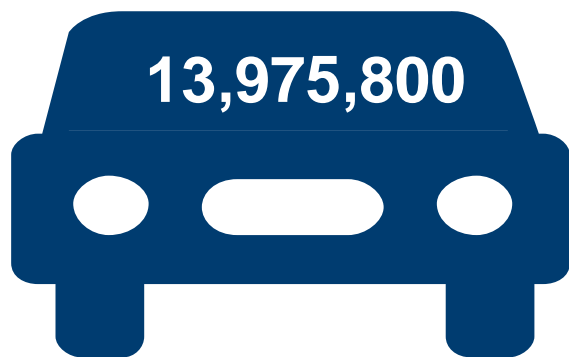
BSD  
LCA  
RCTA  
DOW

FCW  
AEB  
ACC  
Stop & Go

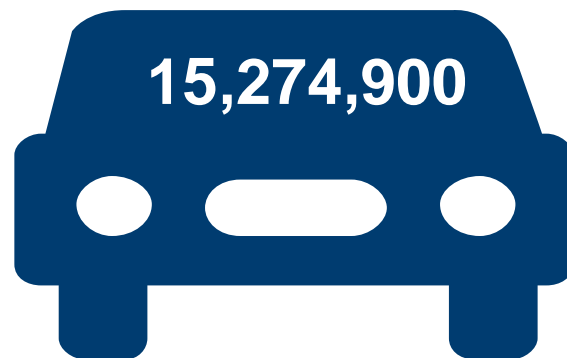


## ◆Automobiles OEM: Mainly Focus on China Car Manufacturers

On the basis of China Auto Association ,Chezhu Home data show that in 2016, the independent brand OEM sales of 13,975,800 vehicles, the joint venture brand sales of 15,274,900 vehicles, CUB actively seizes the business opportunities of OEM millimeter wave radar.



**Independent Brand  
Sales**



**Joint Venture Brands  
Sales**





# Radar Application Field



**Recreational Vehicles**



**Trucks**



**School Buses**



**Garbage Trucks**

## **Application for Automobiles And Motorcycles AM**



**Construction Vehicles**



**Motorcycles**



**Fire Trucks**



**Ambulances**



**Police Cars**



## ◆Automobile ADAS Aftermarket

A Ducker Worldwide-Center for Automotive Research study released by 2017 SEMA found that retrofitting vehicles with advanced driver assistance systems could bring in 1.5 billion dollars to the aftermarket by 2021.

## ◆American School Buses

Based on CUB investigation, there is around 450,000 school buses on the road, 25 million students take buses for school. The annual production is about 46,000 units, this industry is growing stably.



## ◆ American Heavy Duty Market

According to data released by Wardsauto, the annual sales of 4-8 level trucks in the United States are about 430,000 units.

CLASS 3  
10,001 - 14,000 LB. 4.5-6.4tons



CLASS 6  
19,501 - 26,000 LB. 8.8-11.8tons



CLASS 4  
14,001 - 16,000 LB. 6.4-7.3tons



CLASS 7  
26,001 - 33,000 LB. 11.8-15tons



CLASS 5  
16,001 - 19,500 LB. 7.3-8.8tons



CLASS 8  
33,001 LB. AND OVER 15tons over





## ◆ American RV Market

According to Recreation Vehicle Industry Association(RVIA)Information, 2017 totals for towable RVs are up 17.6% to 441,961 units.

2017 motorhome shipments finished at 62,638 units on 14.4% growth over the 54,741 units shipped during 2016.

RV wholesale shipments finished 2017 with 504,599 units up 17.2% compared to the 430,691 units shipped in 2016.



# Radar Application Field

## ◆ For Agriculture

- Drones ( For Spraying Pesticide )



## ◆ For Sea Transportation



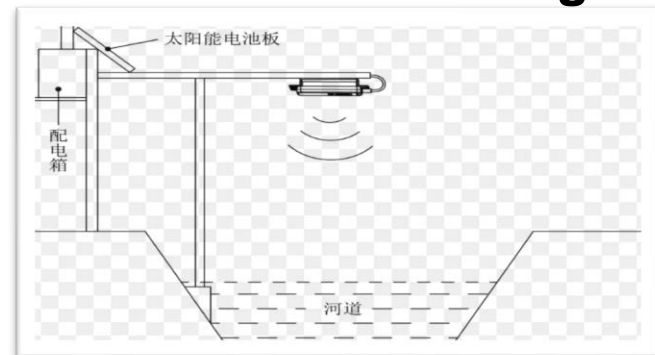
## ◆ For Public Transportation

- Railroad Crossing



## ◆ For Other Fields

- River Monitoring



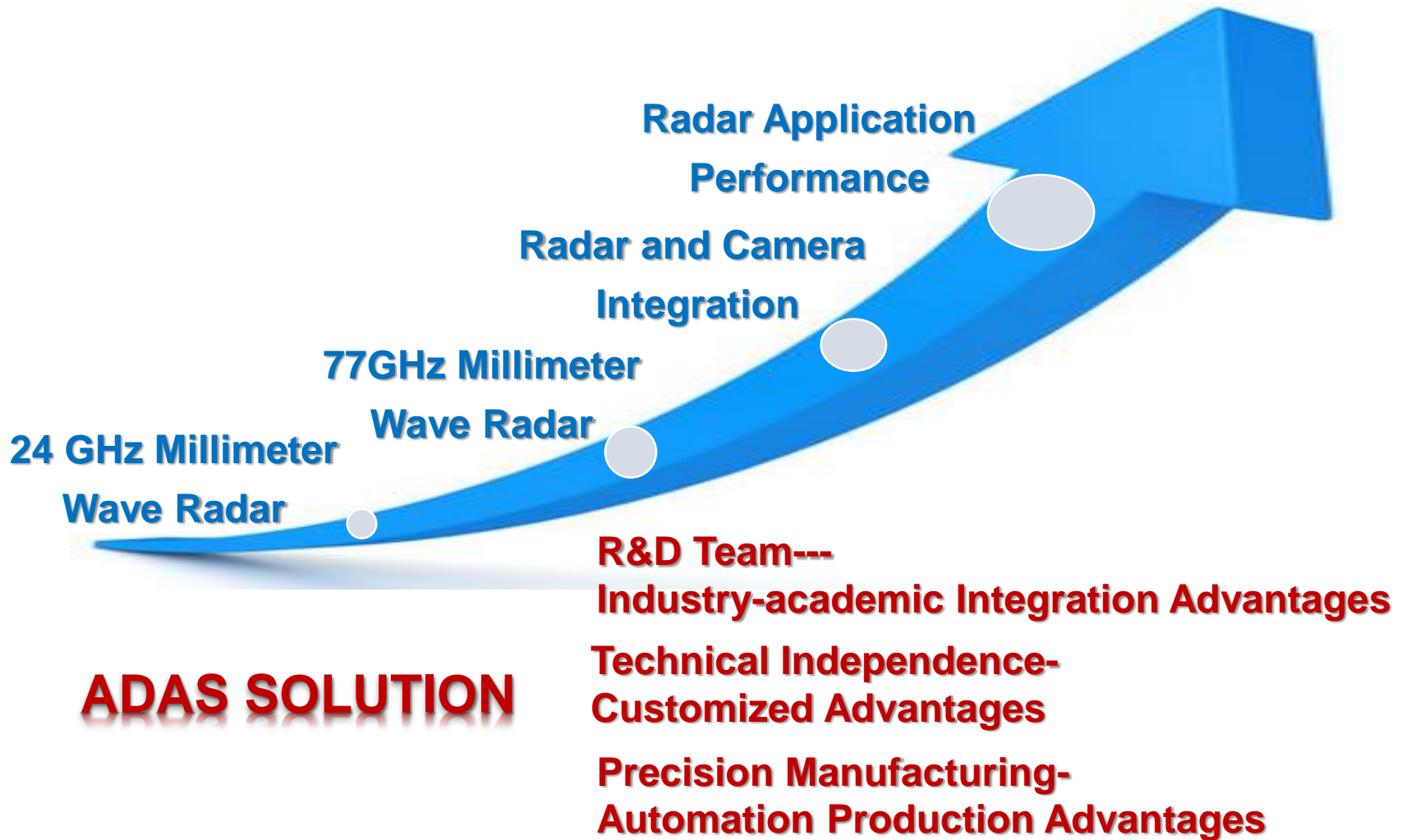
## ◆ UAV Market

According to the UAV technology research and advisory firm, Gartner forecast: The global UAV production will be close to 3 million in 2017, an increase of 39% over 2016, with a total value of more than \$6 billion.





# ADAS Solution –Star Products



Q & A