

# ZHEJIANG JC ANTENNA CO., LTD.

To be a world-leading microwave communication manufacturer

To be a world-class electronic brand

📍 398#zhenye Road, jiaxing, ZJ, China / 1897#jiashandadao, jiashan, ZJ, China

🌐 [www.jinchanggps.com](http://www.jinchanggps.com)





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- **Company Introduction**
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- **Manufacturing**
- **Product Introduction**
- **Application**



# PART 01

## Company Introduction



### 1 Profile

Zhejiang JC antenna Co., Ltd. is **founded in the 2002**, and located in Jiashan County, Zhejiang Province, the core of the Yangtze River Delta business integration Economic zone. Over the past 20 years, JC has adhere to to the high quality development of science and technology, and built itself into a group enterprise integrating **4G/5G communication, GPS/ Beidou navigation and AI sensing imaging technology**. Its products have realized the full coverage of devices, components, terminals, solutions and engineering integration. It is widely used in intelligent networking fields such as vehicle networking, aircraft networking, electric networking, surveying and mapping, aerospace, precision farming, intelligent transportation, smart ports, ocean berths, open-pit mining areas, tunnels and indoor navigation, and has become an industry leader.

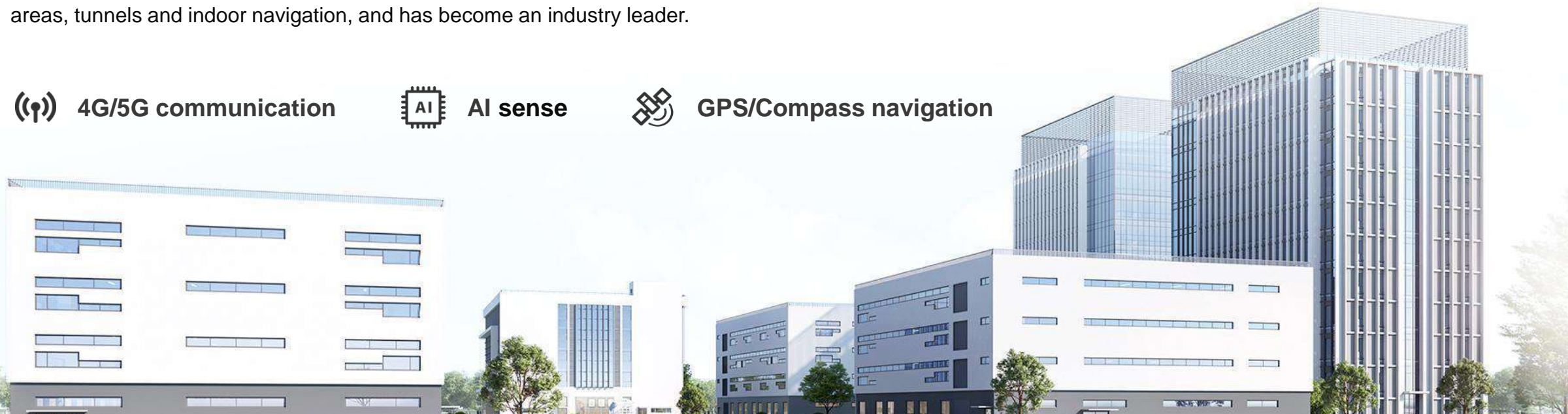
 **4G/5G communication**



**AI sense**



**GPS/Compass navigation**



# 2002

**Established**

Area: 42 acres, 25,000 square meters workshop, 100 acres, 150,000 square meters under construction, two manufacturing bases in Jiaxing and Jiaohan

# 42.4

**Capital(¥/million)**

Vehicle T-BOX, navigation terminal, communication base station, power station, new energy charging pile, intelligent transportation, intelligent household appliances, intelligent gateway, intelligent community, 5G base station, surveying and mapping and other industries.

# 400+

**Employees**

Employees: More than 400 people, more than 30 people in R&D, 9 people in engineering, and more than 20 people in QC management

# 1.5

**Production Capacity  
(million/month)**

Configuration: 20 assembly lines, 8 automated assembly lines, and 1 MES-SMT production line

Main Products: Antennas: single-function box antenna, multi-function integrated antenna, shark fin antenna, rearview mirror antenna, spoiler antenna, smart antenna (need to be jointly designed with TBOX manufacturer), surveying and mapping GNSS antenna, RSU/OBU antenna, wiring harness and supporting module agent; antenna function coverage: V2X, 5G, 4G, GNSS, AM/FM/DAB, WIFI, BLE



### 2 Enterprise Development History



### 3 Core Team



**Jack Chen**

CEO  
Senior Engineer



**Chen Xiaozhong**

COO  
Senior Engineer



**YAO Dongsheng**

VP



**Chen Haijian**

CFO



**Chen Fangyuan**

VP



**Fu Shengming**

CTO



**May Yu**

MD OVERSEAS



**Chen Hao**

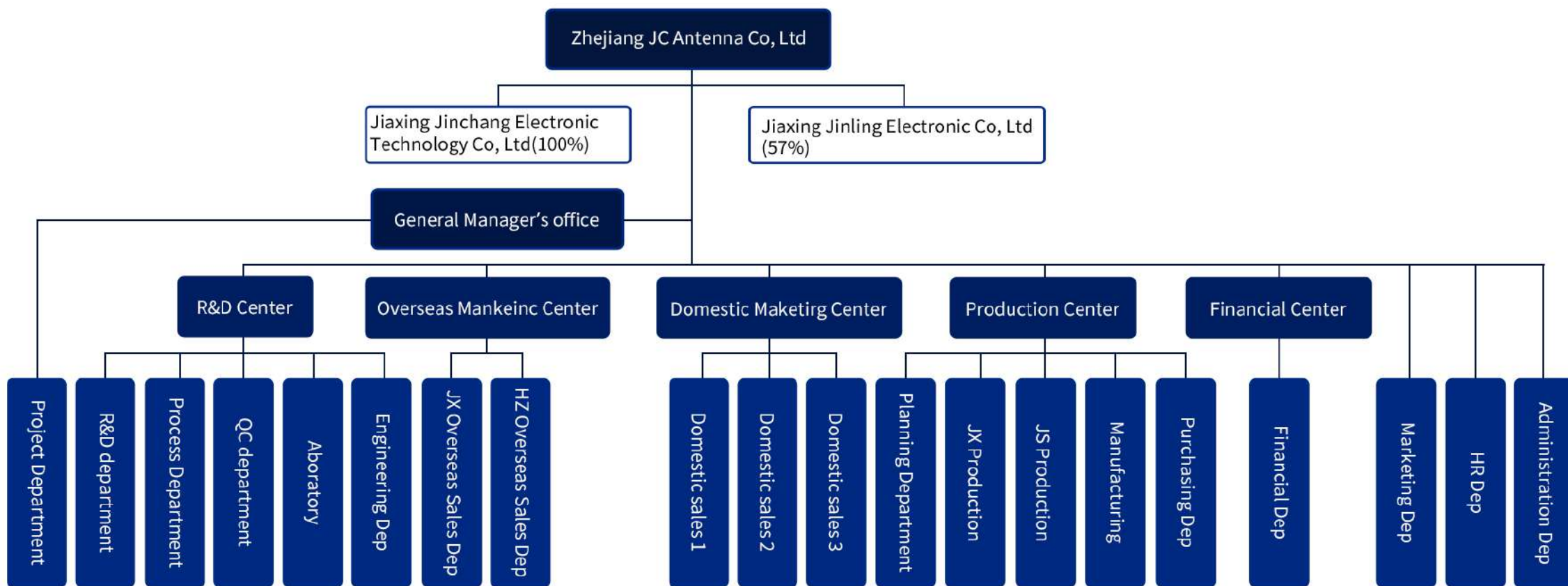
MD DOMESTIC



**Liang Chen**

CMO

### 4 Company structure





## 5 Enterprise Honor

### National and provincial honors

- National high-tech enterprise
- National-level specialization and new "Little Giant" enterprise
- The Ministry of Science and Technology Innovation Fund Special Project Two Awarded Enterprises
- Provincial technology research and development center
- Provincial Patent Demonstration Enterprise
- Provincial Major Science and Technology Special Enterprise
- Provincial electronic information 50 growth characteristic enterprises
- Collaborative innovation enterprise of high-quality development industry chain of provincial manufacturing industry

### Business Status Industry Association

- Vice Chairman of China Satellite Application Industry Alliance
- Director of China 5G Autonomous Driving Alliance
- Member of Surveying and Mapping Association
- Member of Shanghai Beidou Industrial Strategic Alliance
- Director of Zhejiang Beidou Alliance
- Member of Zhejiang 5G Association
- Member of Shenzhen UAV AssociationMember of Jiaxing 5G Association



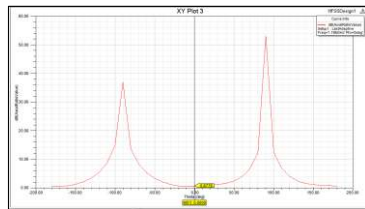
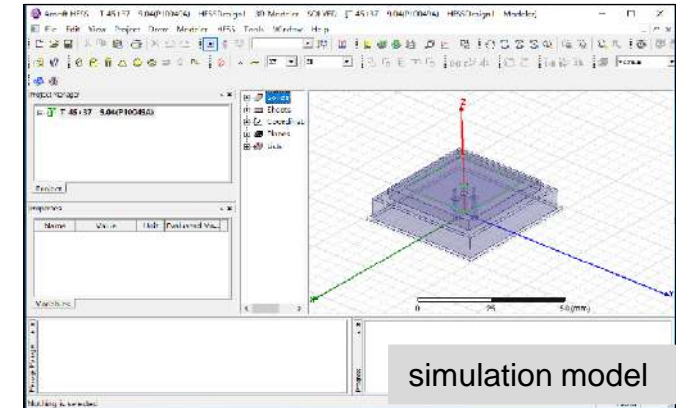
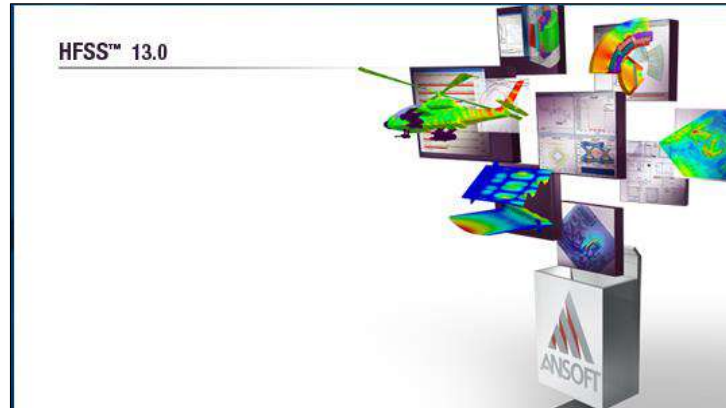
# PART 02

## R & D Capabilities

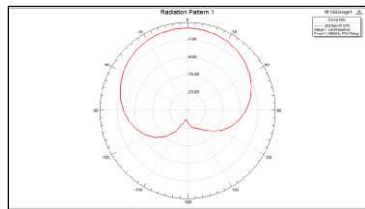


## 1 RF simulation R&D development

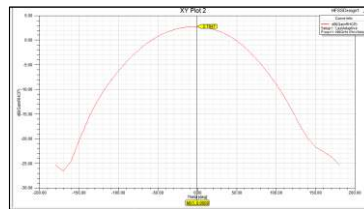
- ◆ Having professional RF simulation design ability, conduct RF simulation design in the early stage of project development, to ensure the effective operation of product RF design and development.



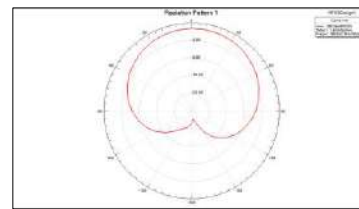
AxiaRatio



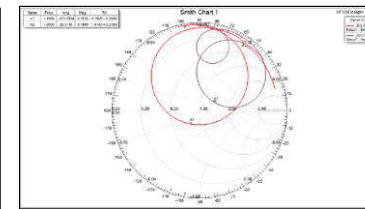
$\phi=0$



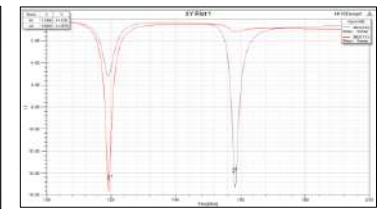
Gain



$\phi=90$



Impedance

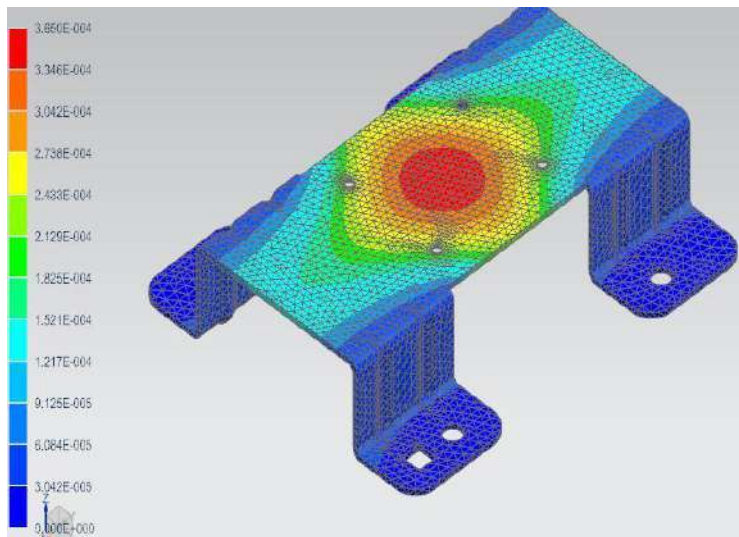


S11

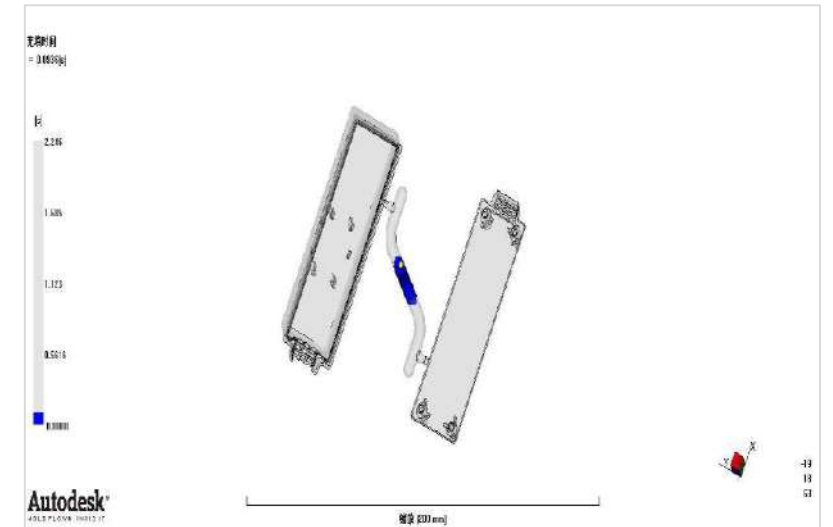
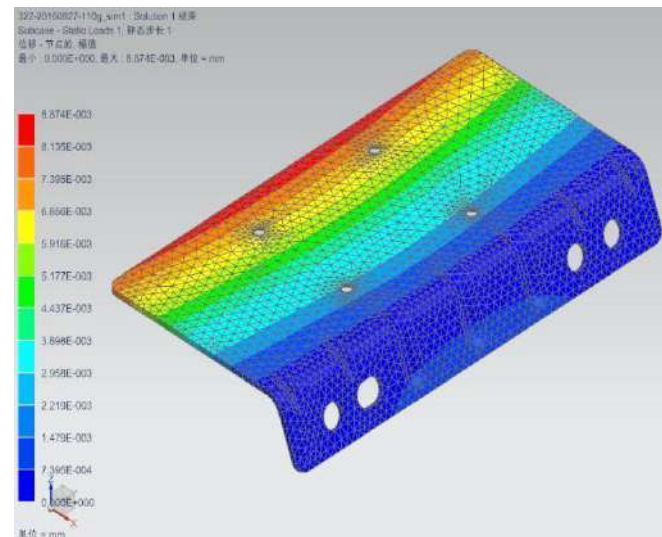


## 2 Mechanical simulation, Mold flow analysis

Having professional mechanical simulation of structural design, mode flow analysis ability, in the early stage of project development of structural design simulation, to ensure the effective operation of antenna structural design and development.



Mechanical simulation



Mold flow analysis

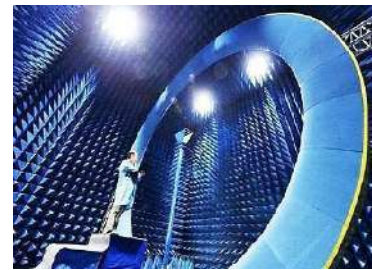
## 3 R&D test

### R&D Test

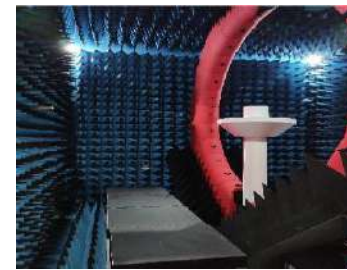
- Insertion force test machine
- Flame retardant testing machine
- ROHS testing machine
- Temperature and humidity test chamber
- Shermal shock test chamber
- Salt spray test chamber
- Vibration table
- Waterproof and dustproof test chamber
- Network analyzer
- Signal analyzer
- Star search test system
- Microwave Anechoic Chamber



Laboratory



Big-Microwave Anechoic Chamber



Small-Microwave Anechoic Chamber



RF Test system



Network analyzer



Spectrum analyzer



Rain test chamber



Temperature and humidity test chamber



Shermal shock test chamber



Dust proof test equipment



Vibration table



Salt spray test chamber



ESD

**Test Contact:** temperature resistant, waterproof, dustproof, seismic, salt spray, antistatic, ROHS, etc., gain, efficiency, direction chart, axis ratio, phase center, etc

**Test frequency range:** 10KHZ~10G

## 4 Technological Achievements

Ministry & Provincial Special Project	
National Ministry of Science and Technology SME Technology Innovation Fund Project	GPS\GSM\CDMA combined antenna module
National Ministry of Science and Technology SME Technology Innovation Fund Project	Multi-frequency  Quadrifilar Helix Omnidirectional Antennas
National High-quality Manufacturing Development Project	High-precision satellite navigation and positioning system project
The Ministry of Industry and Information Technology Academy of Information and Communications initiated the project	5G Smart Gateway Products
Major Science and Technology Project of Zhejiang Province	AI vehicle terminal based on 5G and Beidou high-precision technology
A total of 80 provincial new products in Zhejiang Province	

## Standard

- "Technical Research White Paper on 5G Intelligent Gateway for Internet of Vehicles", and formulate standards
- "Automotive Antenna Standard" Zhejiang Province formulation unit

## Patent

- 16 invention patents, another 12 invention patents are under approval; more than 60 utility model patents; 12 software copyrights



## 5 Invention Patents

Serial Number	Name	Type	Patent No./Application No.	Authorization Date
1	Selective laser melting SLM antenna manufacturing method and the manufactured antenna	Invention Patent	ZL201510397530.9	Dec.22, 2017
2	Method for producing metallized foam lightweight choke coil antenna and the resulting antenna	Invention Patent	ZL201610762722.x	Jun.30, 2021
3	A 5G communication terminal antenna	Invention Patent	ZL201910724759.7	Jan.20,2021
4	A Tri-band Miniaturized Pure Metal Pifa Antenna Containing V2X Frequency Band	Invention Patent	ZL201910724776.0	May .06, 2021
5	Antenna	Invention Patent	ZL201010263682.7	Jun.18, 2014
6	A vehicle-mounted 5G, NR Antenna	Invention Patent	ZL202011431930.4	Jun.17, 2021
7	A remote driving control system video decoding device	Invention Patent	ZL202011431990.6	May.21, 2021
8	A processing device and processing technology of an anti-multipath effect GNSS 3D Antenna Coil	Invention Patent	ZL202011595513.3	Jun.17, 2021
9	A multi-channel video splicing processing device and processing method thereof	Invention Patent	ZL202110152247.5	Aug.17, 2021
10	A miniaturized low-profile navigation combined antenna structure and assembly method thereof	Invention Patent	ZL202110152745.X	Jun .17, 2022
11	Leakage current detection circuit for ADC sampling	Invention Patent	ZL201510681315.1	Mar .27, 2018
12	An Automatic Filter Design Method Based on Tribal Algorithm	Invention Patent	ZL202111593871.5	Nov .08, 2021
13	Design of Cooperative Computing Resource Scheduling for Internet of Vehicles Based on Particle Swarm Optimization	Invention Patent	ZL202210367435.4	Nov .08, 2022
14	Indoor imaging method and device based on WiFi channel state information	Invention Patent	ZL202110129094.2	Dec .02, 2022
15	Network delay positioning error compensation method, device and electronic equipment	Invention Patent	ZL201910425384.4	Dec .06, 2022
16	Target state determination method, device, electronic device and readable storage medium	Invention Patent	ZL201911032685.7	Dec .12, 2022

## 6 Some laboratory equipments

Serial NO.	Equipment Name	asset Number	Model Specifications	Equipment Factory	Measuring range	Expanded Uncertainty/Maximum Tolerance/Accuracy Class	calibration Way	Date of last verification/ calibration	Calibration cycle	Equipment Status
1	Electrodynamic Vibration Test System	MA-17-1082	DC-2200-26/SV-0505/RC-2000	Su test equipment	Frequency range: 5Hz ~ 3000Hz	/	External Calibration	Jun 27, 2023	1 year/time	Normal Use
2	High and low temperature test chamber	MA-11-049	GDS-100	Wuxi Yierda	Temperature: 25°C ~ 150°C	0.1	External Calibration	Mar .3, 2023	1 year/time	Normal Use
3	Electrostatic discharge tester	MA-14-865	EMS61000-2A	Hangzhou Yuanfang	Output voltage: 0.2 ~ 30 KV Output voltage polarity: positive, negative Discharge current rise time: 0.8 ns Discharge mode: air, contact Discharge interval: 0.05 ~ 9.99 s	/	External Calibration	Jun 27, 2023	1 year/time	Normal Use
4	High and low temperature rapid temperature change test chamber	LAB-PT-YED/KSWB - 260L-22092201	YED/KSWB - 260L	Wuxi Yierda	Temperature: -60°C ~ 150°C Humidity: 20% ~ 98%	0.1, 0.1	External Calibration	Sep 4, 2023	1 year/time	Normal Use
5	Salt spray corrosion test chamber	ASWT2021024	SCT-250	Wuxi Oswaite	Neutral Salt Spray (NSS)	0.1	External Calibration	Jun 27, 2023	1 year/time	Normal Use
6	Fully automatic insertion force testing machine	MA-18-1408	JK1801324001	Kexing Precision Instrument	Tensile force: 0 ~ 1000 N/±0.5% Test speed: 0.5 ~ 500 mm/min Maximum test space: 650 mm	0.50%	External Calibration	Mar 3, 2023	1 year/time	Normal Use
7	High and low temperature alternating damp heat test chamber	MA-13-1980	GDIS-010	Wuxi Yierda	Temperature: -40°C ~ 150°C Humidity: 30% ~ 98%	0.1, 0.1	External Calibration	Mar 3, 2023	1 year/time	Normal Use
8	Rain Test Chamber	MA-19-1717	HD-E710-6	Haida International	IPX3、IPX4、IPX5、IPX6	/	External Calibration	Hun 27, 2023	1 year/time	Normal Use
9	Dust-proof experimental device	MA-19-1792	IP-S-0500	Wuxi Oswaite	IP5X、IP6X	/	External Calibration	Mar 3, 2023	1 year/time	Normal Use

## 6 Some laboratory equipments

Serial NO.	Equipment Name	asset Number	Model Specifications	Equipment Factory	Measuring range	Expanded Uncertainty/Maximum Tolerance/Accuracy Class	calibration Way	Date of last verification/calibration	Calibration cycle	Equipment Status
10	Hatchback thermal shock test chamber	MA-19-1793	TSA—40	Wuxi Oswaite	Temperature: -40°C ~ 120°C	0.1	External Calibration	Jun 27, 2023	1 year/time	Normal Use
11	High and low temperature humidity and heat alternating test chamber	MA-19-1794	TC-PRO-150	Wuxi Oswaite	Temperature: -60°C ~ 150°C Humidity: 10% ~ 98%	0.1, 0.1	External Calibration	Jun 27, 2023	1 year/time	Normal Use
12	High and low temperature alternating damp heat test chamber	PT-YED/GDJS-290L-22062001	YED/GDJS - 290L	Wuxi Yierda	Temperature: -40°C ~ 150°C Humidity: 20% ~ 98%	0.1, 0.1	External Calibration	Jun 27, 2023	1 year/time	Normal Use
13	Multi-parameter analyzer (PH/conductivity)	CE-DZS-706F-22110712	DZS-706-F	Leici Technology		0.01	External Calibration	Jun 27, 2023	1 year/time	Normal Use
14	Flame retardant tester for automotive interior materials	MA-15-914	PX-06-003	Phoenix quality inspection equipment		/	External Calibration	Apr 14, 2023	1 year/time	Normal Use
15	spring impact hammer	MA-18-1388	05J	Guangzhou Zhilitong		/	External Calibration	Apr 14, 2023	1 year/time	Normal Use
16	ROHS tester	MA-11-545	EDX-1800B	Tianrui Instrument		/	External Calibration	Mar 3, 2023	1 year/time	Normal Use
17	Automatic Terminal Section Analyzer	MA-19-1714	FM-4D	Kunshan Femtometre		/	External Calibration	Apr 14, 2023	1 year/time	Normal Use
18	二Dimensional Imager	MA-16-982	VMS-3020	Jiaxing Red Sea Measuring Instrument		/	External Calibration	Sep 4, 2023	1 year/time	Normal Use



# PART 03

## Manufacturing



## 1 Two manufacturer



### Jinchang Industrial Park in Jiaxing

Area: 20,000 m<sup>2</sup>, plant 20,000 m<sup>2</sup>, the number of employees: more than 300 people



### JC Antenna 5G Beidou Industrial Park in Jiashan

Area: 60,000 m<sup>2</sup>, plant 120,000m<sup>2</sup>, planned employees: 1,000



## 2 Modern manufacturing workshop and automated logistics

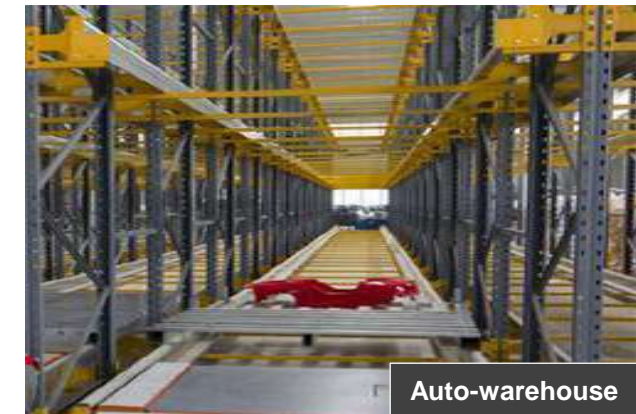


### Material code scanning approach - automated 3D warehouse -RGV/AGV logistics

**Number of lines:** 12 final assembly lines / 8 automatic production lines / 2 automatic SMT production lines

**Applicable products:** shark fin antenna, single frequency antenna, dual frequency antenna, integrated box antenna, Communication antenna, ECU products, gateway terminal, PCBA and wiring harness

**Planned production capacity:** 80k/ day



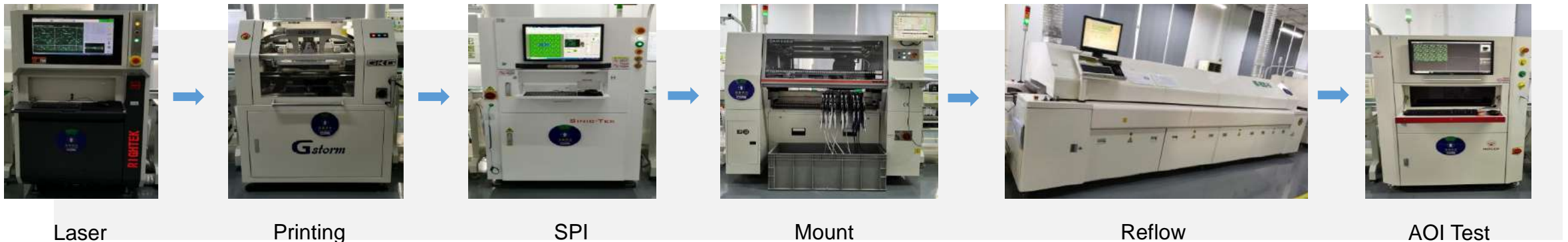
## 3 Automated production lines and automated equipment



### SMT production line

- Established: 2011
- Line quantity: 1 line
- Capacity: 10K/shift 250K/month

### Technical process





### SMA connector automatic assembly line

- Established: 2017
- Applicable procedures: cable cutting, stripping, threading, casing printing, crimping casing, CCD imaging solder joint monitoring
- Capacity: 6kpcs/day, 156kpcs/month



SMA connector automatic assembly line



### Automatic welding line

- Established: 2017
- Applicable procedures: stripping, cable and PCB welding, CCD solder joint imaging monitoring and other procedures.
- Capacity: 4Kpcs/day, 104Kpcs/month



PCB automatic welding line



## Warehouse Management



Small material storage area



FIFO fluent shelf area



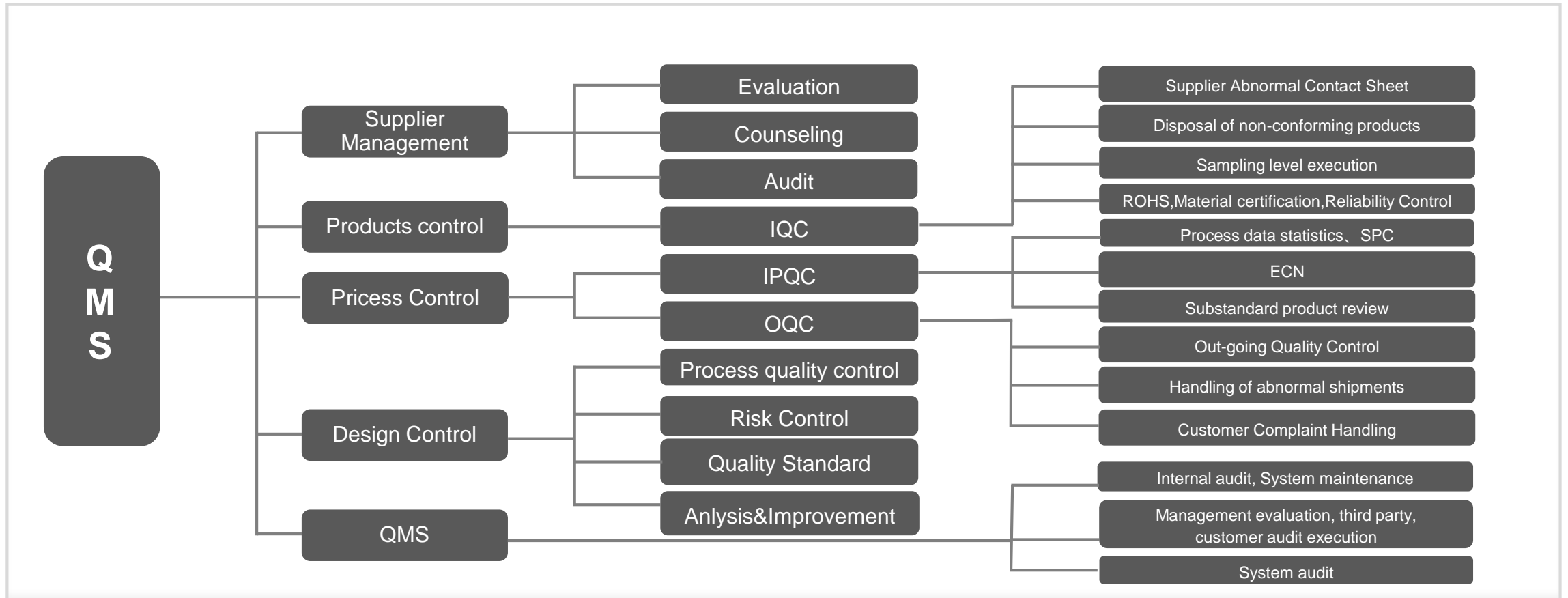
Warehouse overview



Electronic materials warehouse

- FIFO
- A library a yard, PDA pick up / split / transfer
- Standard holds the turnover
- Electronic material assembly meets ESD management requirements
- AP coverage of the whole warehouse, use PDA for ingredients, inventory sorting, material collection, return and exchange processing, etc.
- Electronic material warehouse temperature and humidity control, ESD control management

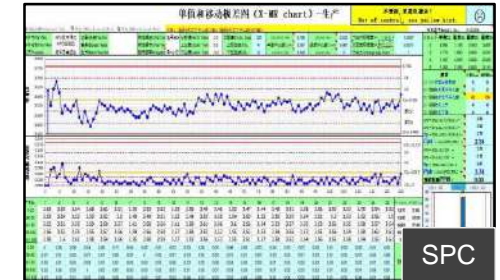
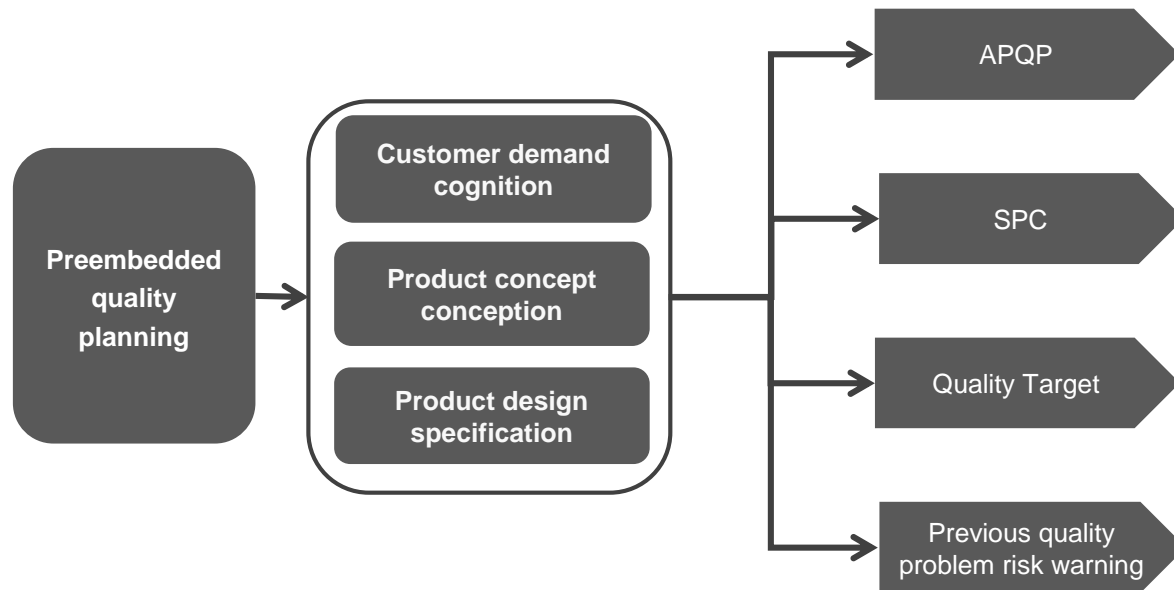
## 4 Quality Management System





## 5 Pre-embedded quality planning

Quality planning in the early stage will be incorporated into the whole process of **product design**, **technological process** and **quality control**, and then related to **supplier management** to ensure the effectiveness of quality planning.



试制阶段 初期流动结束后		
指标名称	目标值	
样品的合格率 (包括返工)	ET 100%	PT 100%
工程能力指数 (CPK/PPK) 达成率	70%	95%
产品的模具/检具的达成率	100%	100%
初期流动结束后质量目标		
指标名称	目标值	
0公里累积故障率 PPM	0	
影响一次下线合格率		
售后3MIS	Quality Target	





### 6

### Supplier management

#### Supplier management

##### ➤ New material validation

1. Verification of packaging, appearance, dimension, performance, material and packaging
2. Test in equipments
3. Validation of trial production

##### ➤ Quality Agreement

1. Regulations on Penalties for Quality Breach
2. Supply Guarantee Agreement
3. Quality agreement(include RoHS)

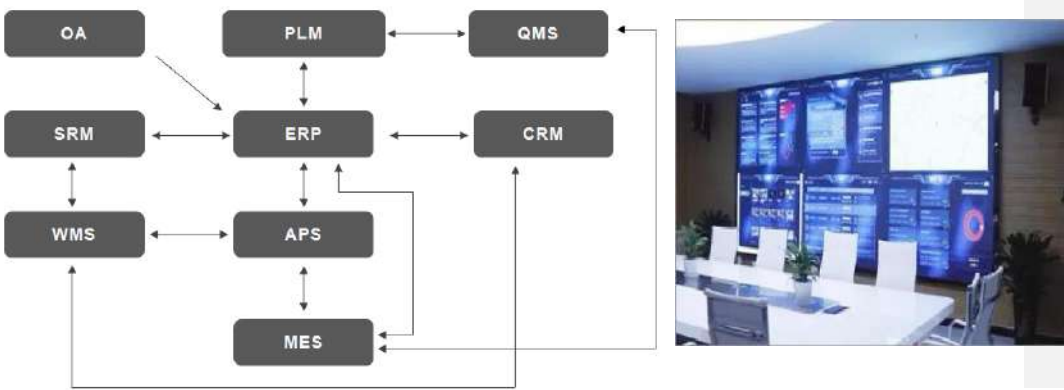
##### ➤ Supplier review, assessment and rating

1. New supplier audit
2. Score new suppliers according to IQC, IPQC result, customer complain and timelines of exception handling
3. Regular annual supplier audit

##### ➤ Supplier counseling

1. Annual audit plan & Special audit (Unannounced Inspection) ;
2. TOP5 material problem in IQC, PQC and customer complain, vendor guidance and improve

7 Digital information management



MES, ERP, Quality report system, OA integrates process management, equipment management, production task management, quality management, supply chain management, production picking and other production process management, and realizes efficient sharing and transmission of product information.



ERP



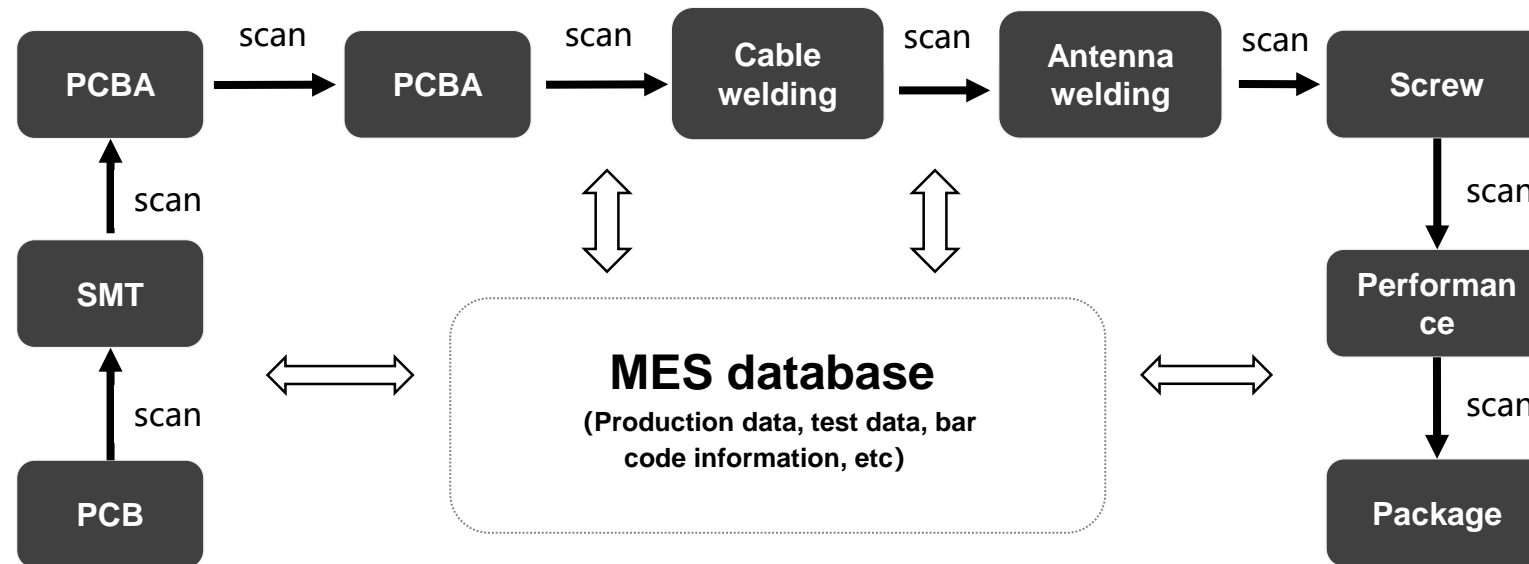
Quality report system



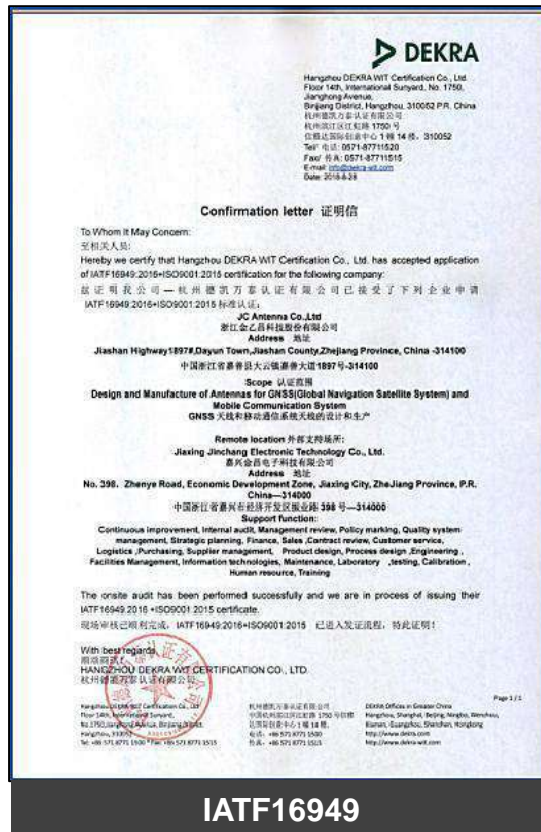
OA

## 8 MES(Product implementation traceability tracking)

- ◆ Use MES system to associate production plan, production process, product quality and workshop inventory management
- ◆ Product production data, test data and bar code information are associated to achieve accurate traceability



## 9 Certification



IATF16949



ISO14001



SGS



ISO-9001



ROHS



REACH



CE-TUV



FCC-ECMG

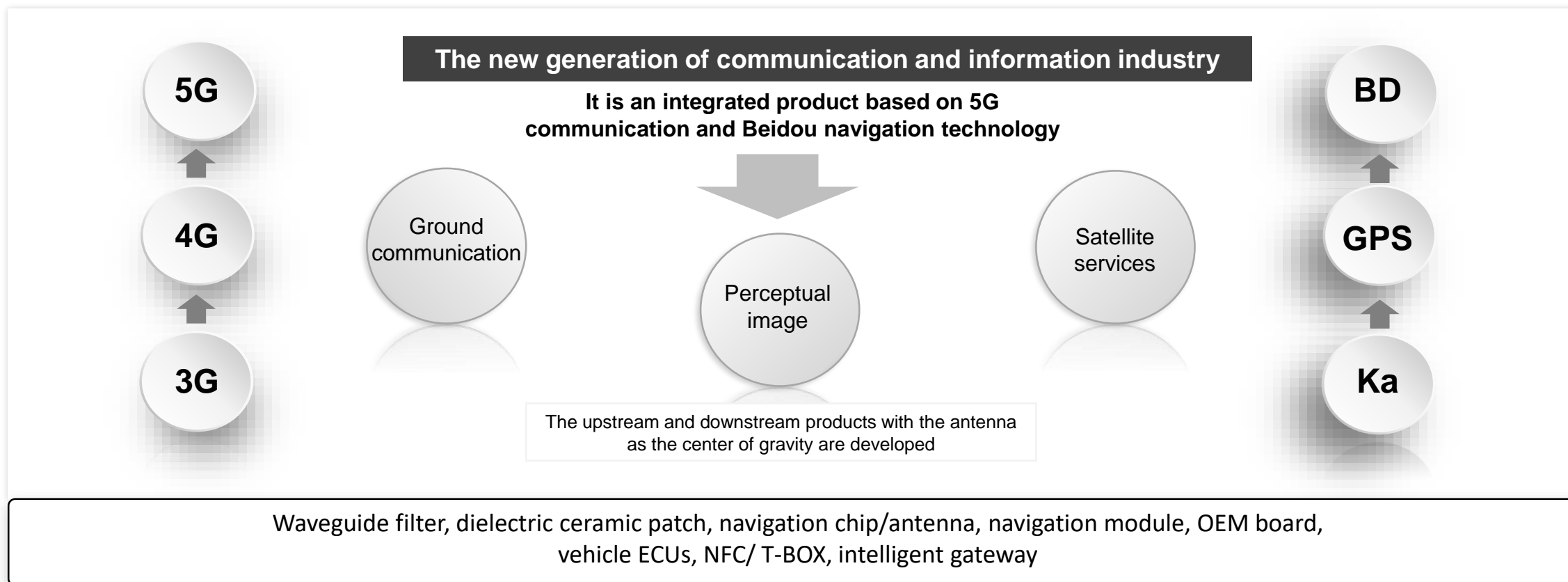


# PART 04

## Product Introduction



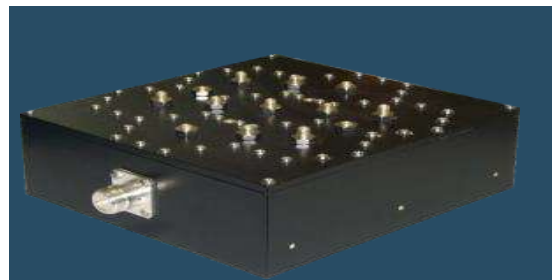
## 1 Industrial direction and product categories



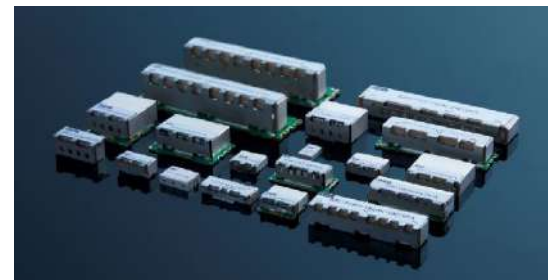
### 2 Filter



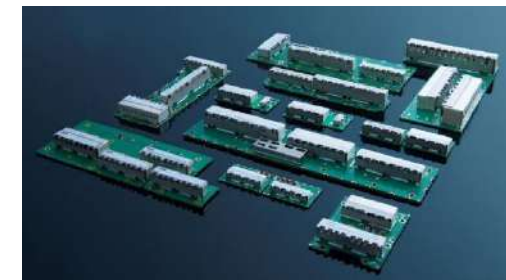
Ceramic waveguide filter



Cavity filter



Filter & Diplexer



Combiner

### Function

- 2~14 resonant cavity
- Size: 5mm ~ 25mm Frequency: 700MHz~40GHz
- Low plug loss, customization, operating temperature (-45 to 125°C)

- 2~14 resonant cavity
- Size: 1.5mm ~ 16mm Frequency: 200MHz~7GHz
- Low plug loss, customization, operating temperature (-45 to 125°C)

### Application



Base station



Repeater



Satellite



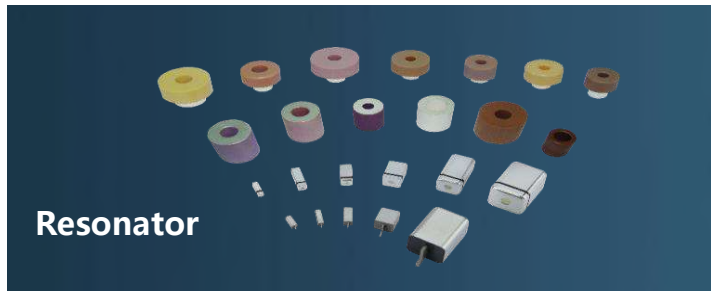
IOT



Wireless



## 3 Resonator Ceramic patch antenna



- Base station metal filter & circuit breaker
- PCS/PCN Metal filter & Combiner
- Satellite broadcast reception LTE TV
- Resonant antenna High quality PLL, VCO





### 4 Vehicle external antenna



#### Sharkfin Antenna

Multi-function integration according to demand, including: 5G, V2X, radio, WiFi, GNSS, BLE, etc



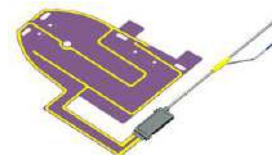
#### Spoiler antenna

Can be arranged in the spoiler according to the requirements of multi-function integration, including: 5G, V2X, radio, WiFi, GNSS, BLE, etcSS、BLE,etc



#### Pole radio antenna

AM/FM/DAB Function to be choosed



#### Rearview mirror radio antenna

AM/FM/DAB Function to be choosed

## Vehicle antenna and accessories



### Pigtail, Connectors

Body coaxial harness of all types and models



### PCB antenna and bracket antenna for navigation host /TBOX

Generally LTE, WiFi, BT functions



### Radio glass antenna amplifier, filter

AM/FM/DAB to be choiced



### Built-in forward V2X antenna

The decoration cover above the rearview mirror is arranged inside the installation



### Built-in control box antenna

Multi-function integration according to demand, including: 5G, WiFi, GNSS, BLE, etc

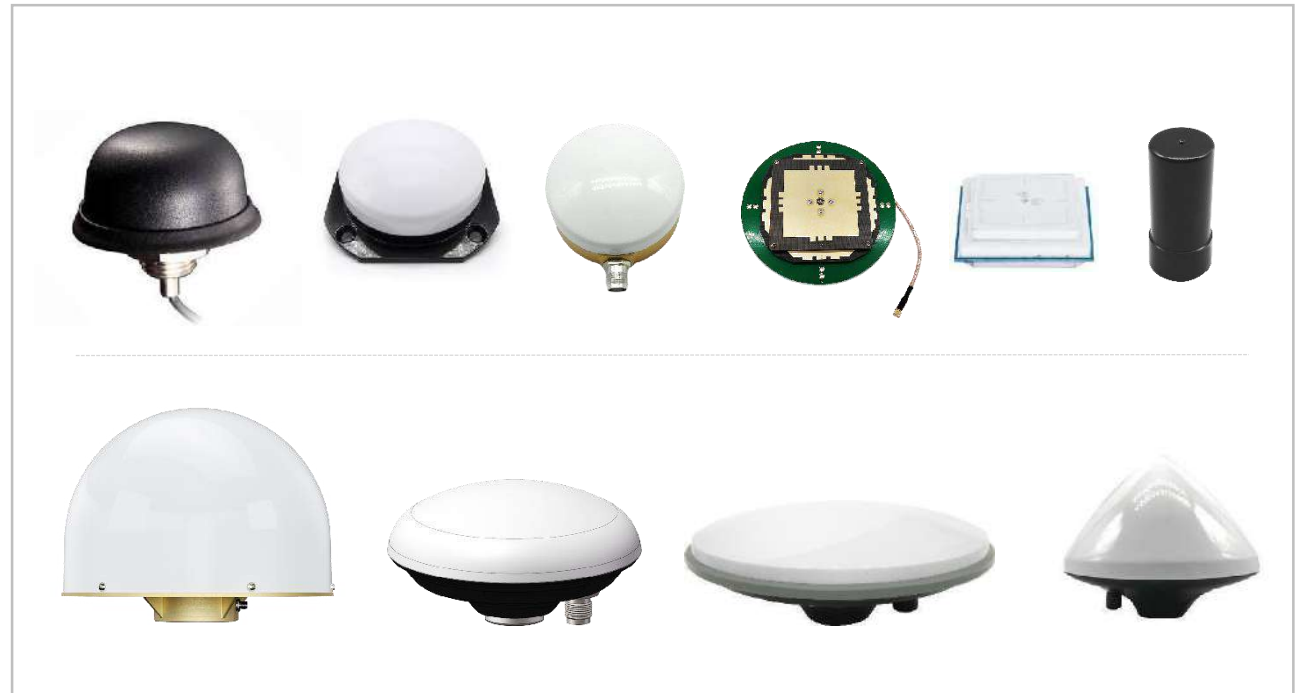


### Built-in coat stand box antenna

Multi-function integration according to demand, including: 5G, WiFi, GNSS, BLE, etc

### 5 High precision surveying antenna&aerospace antenna

It is a centimeter and millimeter GNSS antenna used in high-precision navigation, engineering monitoring, equipment site monitoring, surveying and mapping, intelligent agricultural machinery, unmanned aerial vehicle, Beidou base station and other industries





### Beidou High precision choke coil antenna (2D/3D)

Applied to Beidou foundation strengthening station, surveying and mapping base station, to achieve millimeter-level positioning accuracy



#### Frequency

GPS L1/L2/L5  
GLONASS G1/G2  
COMPASS B1/B2/B3  
Galileo E1/E2/E5a/E5b/E6



### 6 Communication antenna 2G,3G,4G,5G,Lora

Frequency: 698MHz-2700MHz



**JCG146-2**  
SIZE:  
39×15×0.2mm



**JCG019L**  
SIZE:  
D71×14mm  
MOUNTING:  
Magnet / Adhesive / Screw



**JCG825-2**  
SIZE:  
D62×473mm  
MOUNTING:  
Magnet



**JCG016**  
SIZE:  
D29×120mm  
MOUNTING:  
Magnet  
CABLE:  
RG174

Frequency: 824-2170mhz



**JCG017**  
SIZE:  
113×22×6.4mm  
MOUNTING:  
Adhesive  
CABLE:



**JCG023**  
SIZE:  
D45×75mm  
MOUNTING:  
Screw



**JCG024**  
SIZE:  
D40×295mm  
MOUNTING:  
Magnet



**JCG401-1**  
SIZE:  
53.7×D10.5mm/D1  
0.5×50.2mm

Fiberglass Antenna



Frequency	300M	4.5GHz	5.8GHz	5.8G	10GHz	12GHz
Length	15cm	20cm	80cm	110cm	130cm	150cm

Panel Antenna



**JCG916**  
FREQUENCY:  
700-2690MHz  
GAIN:  
6-10dBi



**JCF809**  
FREQUENCY:  
700-2700MHz  
GAIN:  
9-11dBi



Patch Antenna



**JLT915562P6A**  
**TLT868560P6A**  
Frequency: 915/868MHz  
Dimension: 60×60×6mm/62.5×62.5×6mm



Terminal Antenna



**JCG402LR**  
FREQUENCY:  
808 or 915MHz  
GAIN:  
2-3dBi



**JCG409**  
FREQUENCY:  
808 or 915MHz  
GAIN:  
2-3dBi



**JCG410**  
FREQUENCY:  
808 or 915MHz  
GAIN:  
2-3dBi



**JCG410-1**  
FREQUENCY:  
808 or 915MHz  
GAIN:  
2-3dBi



**JCW413**  
SIZE:  
D29.4×143mm



**JCW063**  
SIZE:  
115×22×3.6mm  
MOUNTING:  
Adhesive



**JCW410**  
SIZE:  
D13×195mm

Specification	
Frequency	2400-2500MHz
Band Width	100MHz
Impedance	50 ohm
V.S.W.R	2.0:1
Gain	2-3 dBi
Input Impedance	50W
Polarization Type	Vertical or Horizontal
Working Temp	-40°C--85°C
Relative Humidity	Up to 95%
Waterproof	IP67

WIFI INTERNAL ANTENNA



**JCW405**  
SIZE:  
42×29×1.5mm  
MOUNTING:  
Internal



**JCW407**  
SIZE:  
30×7mm  
MOUNTING:  
Internal



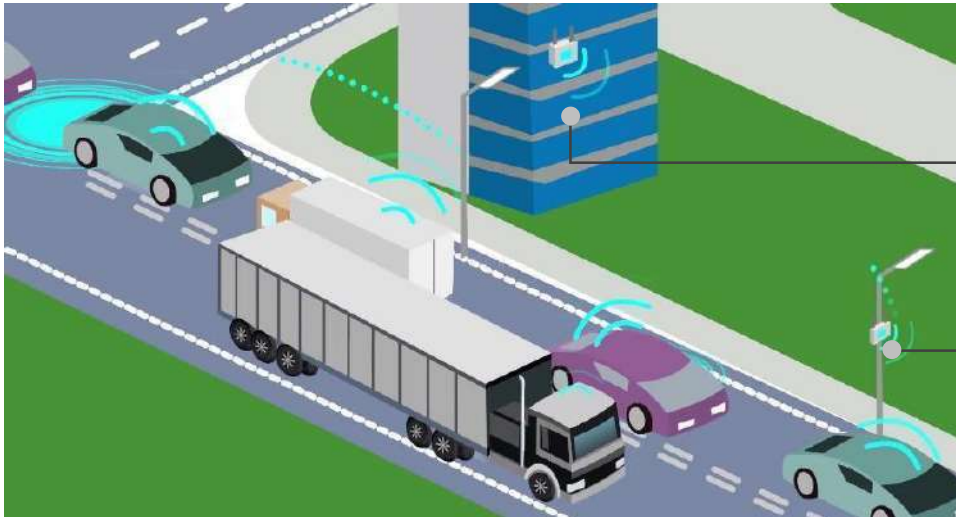
**JCW406**  
SIZE:  
67×17×1mm  
MOUNTING:  
Internal



**JCW414**  
SIZE:  
60×15×0.6mm  
MOUNTING:  
Internal

### 7 RSU & OBU antenna

RSU antenna and OBU antenna used in intelligent transportation, intelligent gateway, intelligent assistance and other industries





### 8 Navigation module/board Vehicle ECU/NFC antenna



#### Navigation Module

- Whole system full frequency point high precision RTK sticker module
- Support full frequency point high precision RTK positioning
- Instantaneous RTK initialization and long distance RTK solving
- The size is 30×40mm and the weight is about 9.2g
- 20Hz high data output rate
- Enhanced multi-mode and multi-frequency RTK technology, JamShield adaptive anti-jamming technology and U-AutoAlign multipath suppression technology are suitable for harsh working environments such as occlusion and signal interference
- Support odometer input and external higher performance inertial device combination



#### Navigation Board

- Supports BDS B1I/B2I/B3I/B1C/B2a+GPS L1/L2/L5+GLONASS L1/L2+Galileo E1/E5a/E5b
- Better than 1mm carrier phase observation
- Centimeter-level high precision RTK positioning
- Hardware size compatible with the market mainstream GNSS OEM board
- Onboard MEMS integrated navigation
- NebulasII Based on NebulasII multi-system, multi-frequency high-performance SoC chips
- Supports single-system independent positioning and multi-system joint positioning



#### Vehicle ECU\NFC

- Supports short-range wireless communication technologies such as BDS B1I/B2I/B3I/B1C/B2a+GPS L1/L2/L5+GLONASS L1/L2+Galileo E1/E5a/E5b
- High security, can not be easily cracked
- Support battery lock
- Support helmet lock
- Support Bluetooth transmission
- Support Beidou's positioning
- Support 4G communication

## 9 Intelligent navigation, communication, indoor positioning, intelligent agricultural machinery, intelligent detection, intelligent mining area, intelligent transportation and other programs and projects



Antenna, terminal, board card, module, RTK differential account, harness, connector, reference station



# PART 05

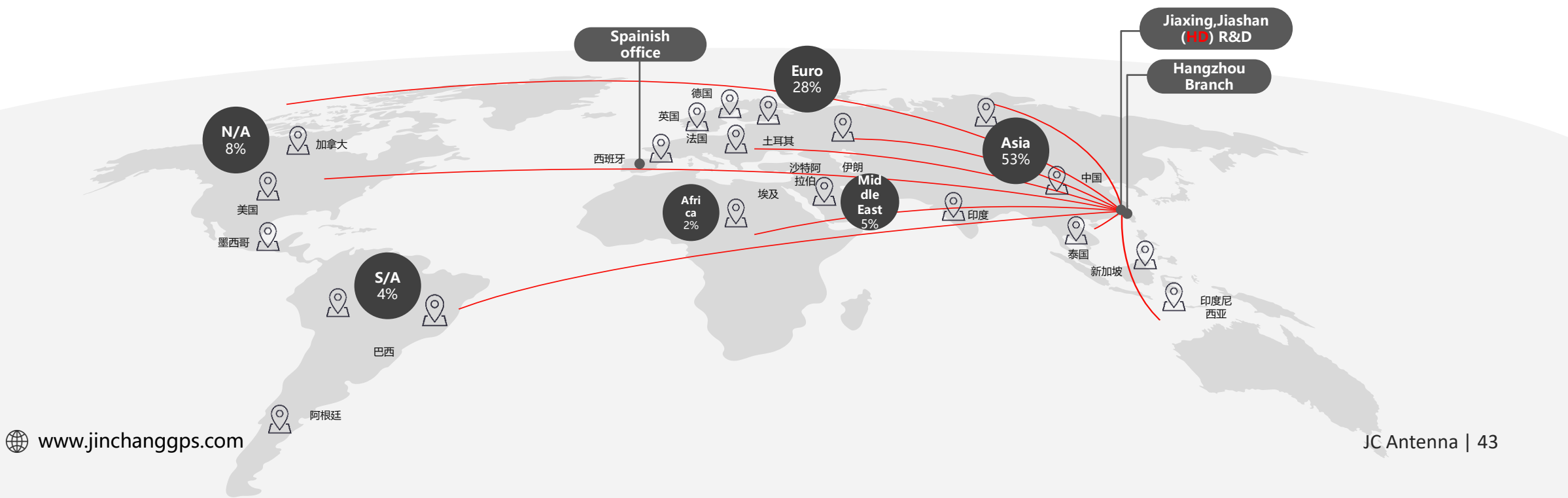
## Market & Applications





## 1 Global Market

- The market covers more than 190 countries in the world, more than 8000 contact customers, more than 2000 interactive customers, more than 800 customers in the year of transaction
- Sales team location: Jiashan (headquarters), Hangzhou Branch, Jiaxing branch, Spain office.



## 2 Cooperation



## 3 Tracker and navigation



### GPS Tracker/Navigator



#### JCB046L

Freq.: GPS/GSM/LTE  
 Ø:R=81mm  
 Connector: Fakra/SMA  
 Cable: RG147/others  
 Adhesive: ABS  
 Mounting: Screw

### Navigator



#### JCG017L LTE antenna

Freq.: GSM/LTE/5G  
 Ø:104×18×1mm  
 Connector: Fakra/SMA  
 Cable: LMR100/others  
 Adhesive: ABS

## Applications



Robotaxi



Transport Fleet



Harbor Container Truck



Automatic Guided Vehicles



## 4 Smart metering



Water Smart Meter



### JCG131B (PCB)

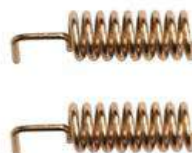
Freq.: 700MHz-900MHz  
 Ø: 20\*46\*0.8mm  
 Connector: Fakra/SMA  
 Material: Phosphor Copper  
 Mounting: Welding  
 ENV: ROHS Compliant



Different Connectors

### JCD716 (Spring)

Freq.: 433MHz  
 Ø: 43\*Ø5.6mm  
 Connector: Fakra/SMA  
 Material: Phosphor Copper  
 Mounting: Welding  
 ENV: ROHS Compliant



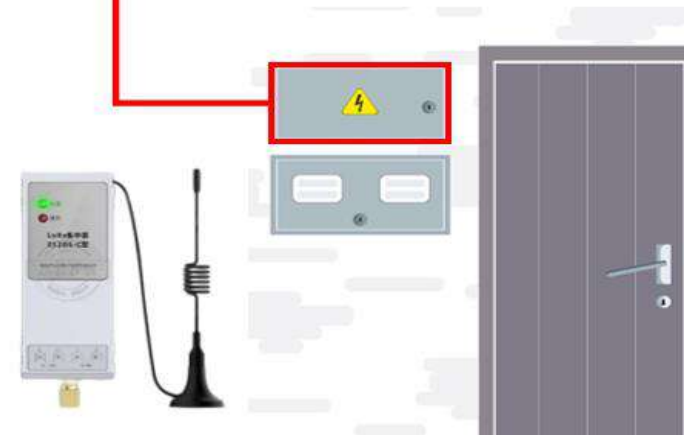
Gas Smart Meter



### JCG024 (Whip)

Freq.: 824-960/  
 1710-2170MHz  
 Ø: 311\*Ø40mm  
 Polarization: Linear  
 Connector: SMA or others  
 ENV: ROHS Compliant

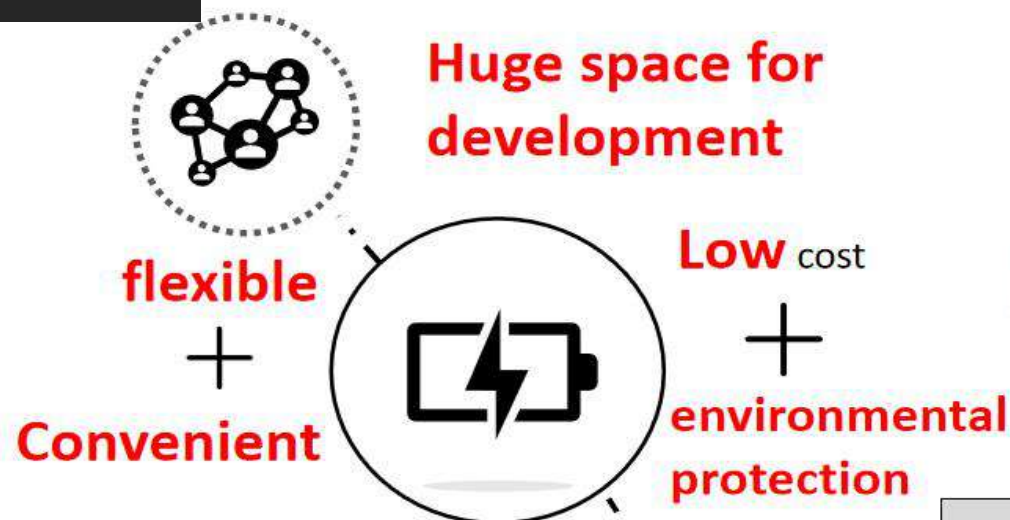
Electricity Smart Meter



## 5 EV charger



JCG003L	
Freq.	698~960MHz/1710~2690MHz
Ø	46.6mm
Polarization	Linear
Connector	SMA/MCX/FAKRA or others
VSWR	< 3.0
ENV	ROHS Compliant



JCG046L	
Freq.	698~960MHz/1710~2690MHz
Ø	81.3mm
V.S.W.R	< 3.0
Gain	2.5dBi (Zenith)
Polarization	Linear
Connector	SMA or others
ENV	ROHS Compliant



JCG058-4G	
Freq.	700~960/1710~2655MHz
Ø	50mm
V.S.W.R	< 3.0
Gain	2.5dBi (Zenith)
Polarization	Linear
Connector	SMA or others
ENV	ROHS Compliant



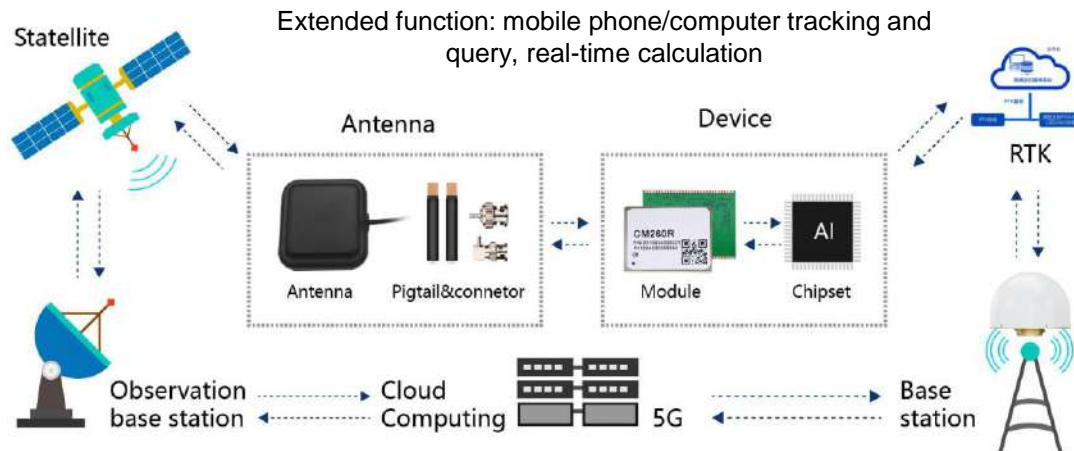
## 6 Single frequency RTK product solution

Frequency: B1/L1/G1    Accuracy: 50-80cm

## Application

- China Unicom 5G positioning and orientation
- High precision vehicle positioning
- Intelligent central control of two wheels
- Intelligent transportation
- Power inspection
- Shared Mobility

### Solution





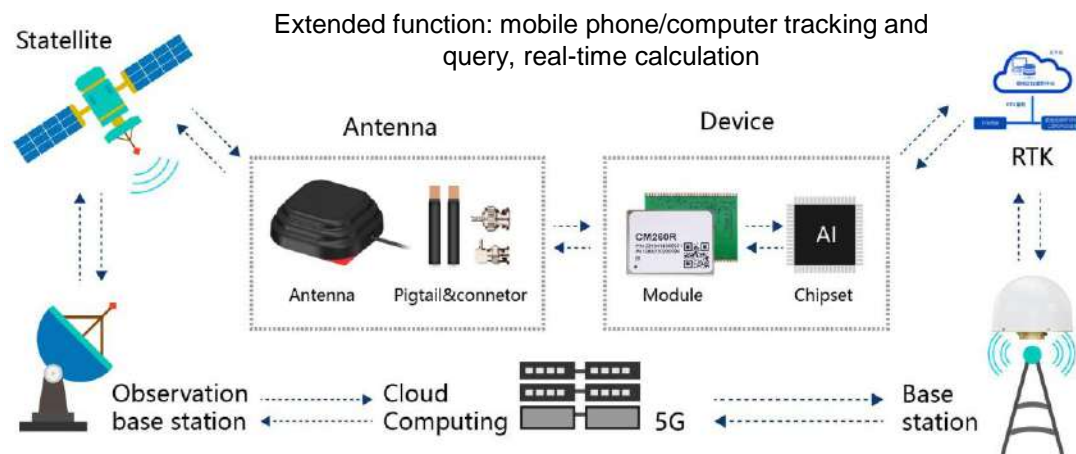
### 7 Combo RTK

Frequency: L1/L2 or L1/L5 Accuracy: 10-20cm

#### Application

- airport shuttle bus
- Dongfeng auto
- Smart lawn mower
- Industrial robot
- Modern agriculture
- Smart transportation

#### Solution



Tractors



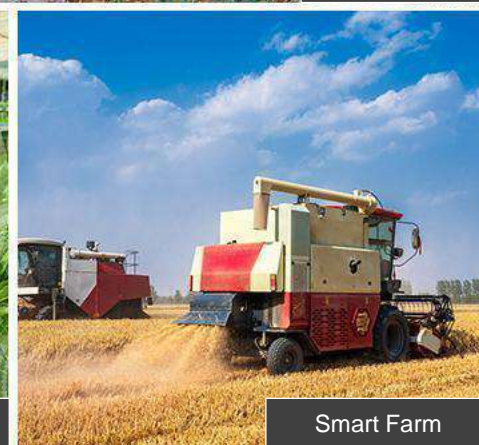
Hay Mower



Shuttlebus



Robot



Smart Farm

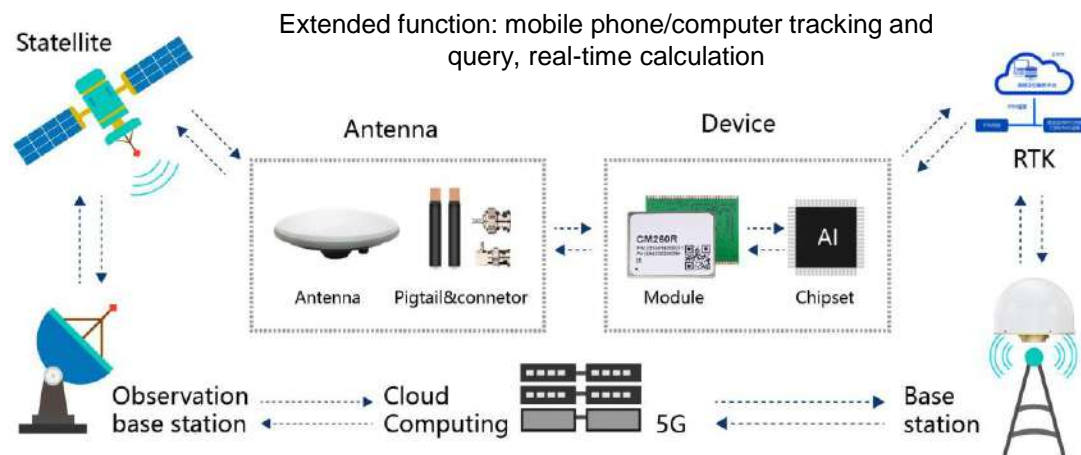
## 8 Multi frequency RTK

Frequency: L1/L2/B1/B2/GL1/GL2 Accuracy: 5-10cm

### Application

- Inland and offshore shipping
- Landslide monitor
- Urban terrain prospecting
- Telecom CORD base station
- Intelligent Drive
- surveying and mapping

### Solution





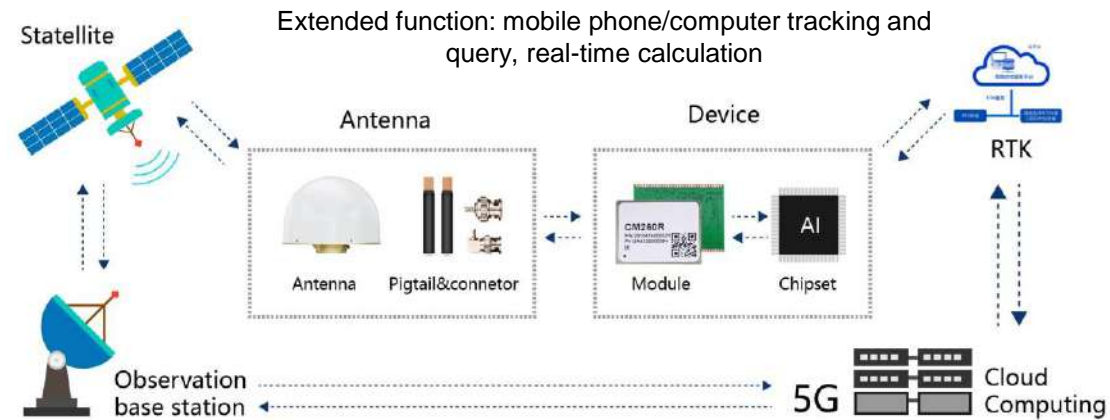
## 9 Full band RTK

Frequency: full band Accuracy: <5cm

### Application

- Mobile/Unicom/Telecom CORS station
- Bridge/viaduct/reservoir deformation monitoring
- Ground disaster monitoring
- Smart City

### Solution





## 10 Shared Mobility

The mobile end of a shared scooter ▼

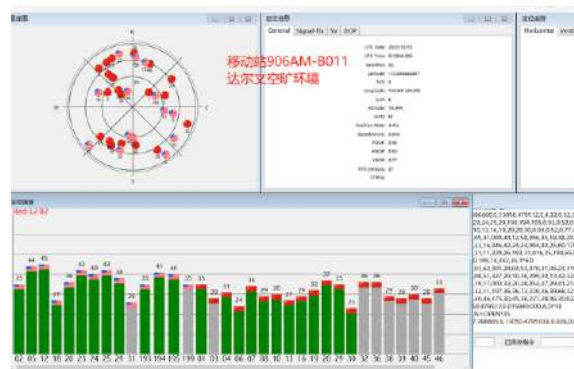
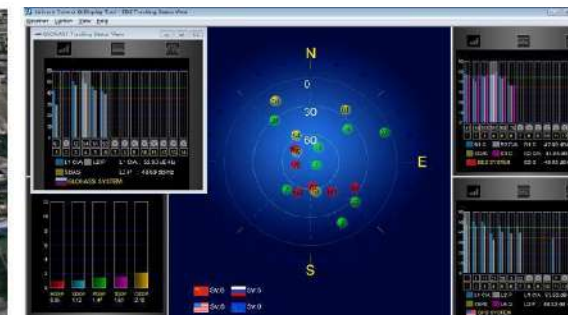
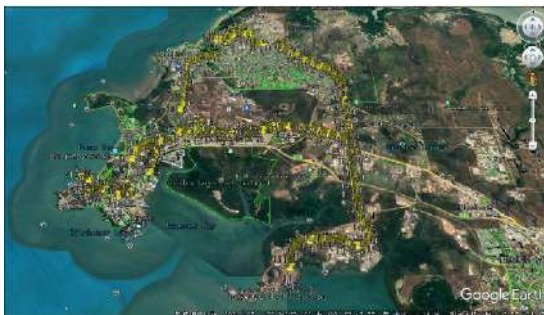


表 1 JCA228F静态载波相位差分定位精度

精度统计	JCA228F	设计指标
水平定位精度 (RMS)	0.0042m	0.010m
高程定位精度 (RMS)	0.0082m	0.020m

表 2 JCA228F静态姿态测量精度

精度统计	JCA228F	设计指标
航向角精度 (RMS)	0.116°	0.2°
俯仰角精度 (RMS)	0.383°	0.4°
横滚角精度 (RMS)	0.375°	0.4°



11 Vehicle



Project		Content
Brand		Leapmotor
Seris		T03、C11、C01
Products		Sharkfin antenna Q-JCB082



Project		Content
Brand		Dongfeng
Seris		T5EVO、T5、SEV50
Products		Sharkfin antenna Q-JCF078-1



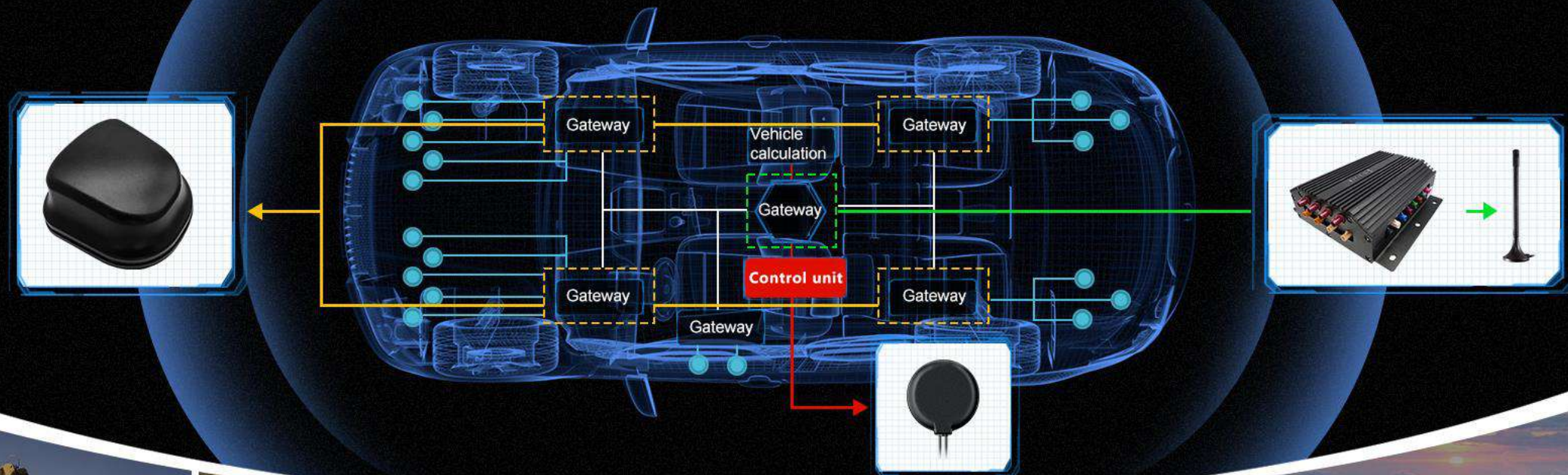
Project		Content
Brand		Beijing Vehicle
Seris		B40、B80
Products		JCB305FM



Project		Content
Brand		Jlanghuai
Seris		M4、S1、S931、IS4
Products		Sharkfin antenna Q-JCB080F



## 12 Remote control





### 9 More



Cross-border logistics transportation project



Tianjin Port West smart port project



The first L4 unmanned vehicle in China --  
Dongfeng sharin-VAN



The largest 5G+ Beidou  
CORS station in China --  
China Mobile Project



Xiongan New Area  
underground parking lot  
navigation IPG gateway  
project





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