ELEKTROTEL®

Product Introduction

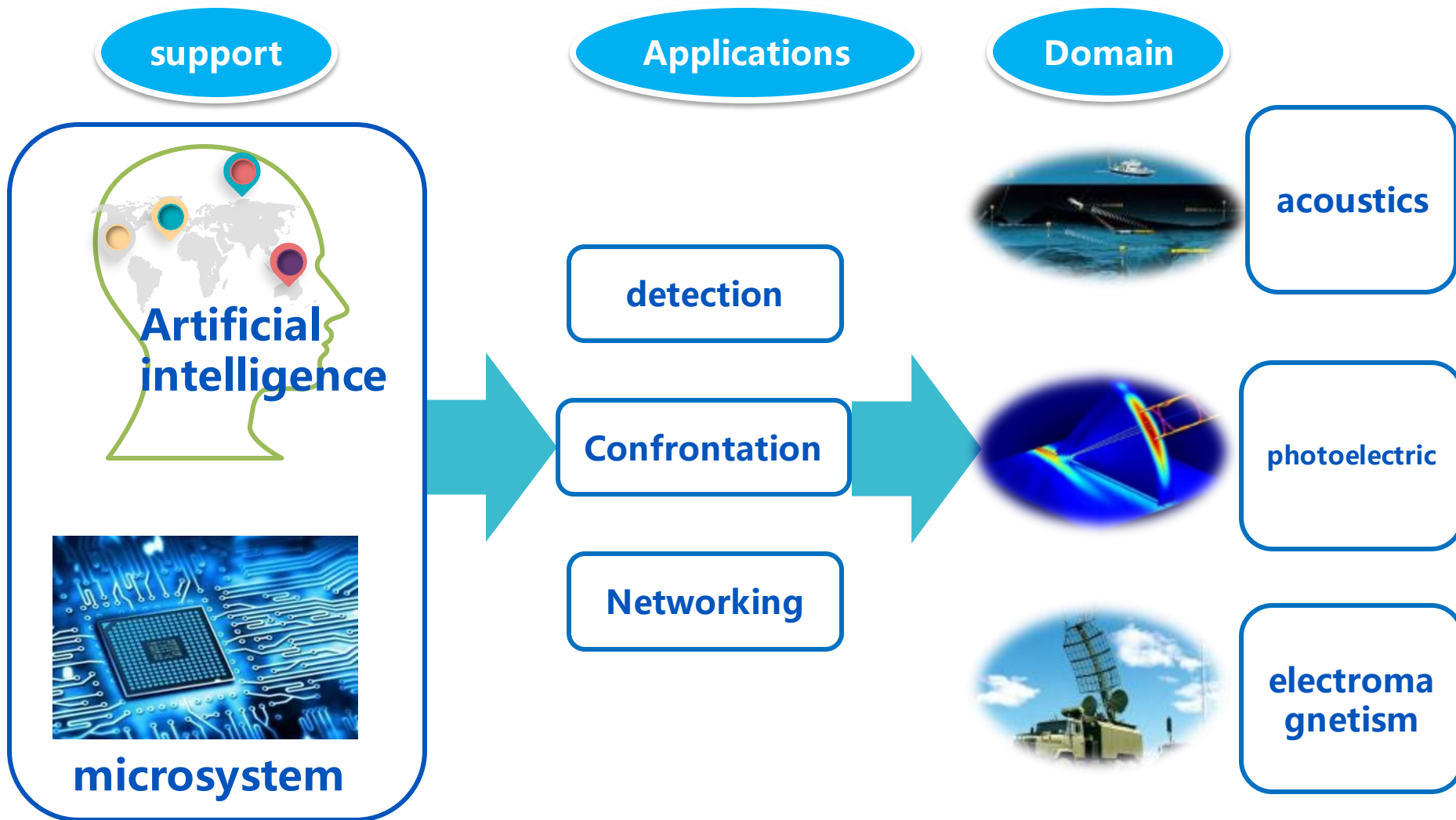## 2023

ELEKTROTEL®

Directory

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support

Applications

Domain

Artificial intelligence

microsystem

detection

Confrontation

Networking

acoustics

photoelectric

electromagnetism

On the basis of artificial intelligence and Microsystems, we will carry out technological research and development of new technologies, new fields and new products .

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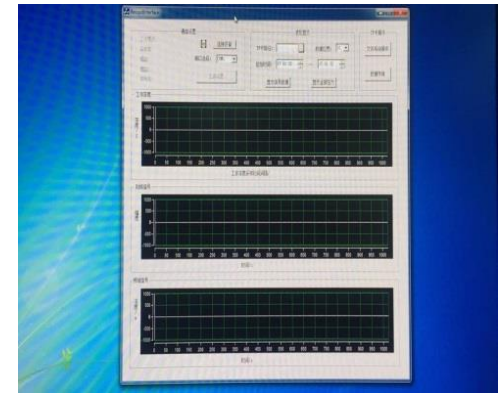## (1)　Acoustic detection products

1、Passive detection system for underwater moving targets

Main indicators：

➢ **Manner of working：passive**

➢ **Maximum detection range：Not less than 8km （Low noise underwater targets）**

➢ **Direction finding accuracy：Better than one degree**

➢ **Probability of correct underwater target recognition：Not less than 85%**

➢ **Applicable water depth： 50 to 1000 meters**

Passive detection system for underwater moving targets

  In the complex Marine environment, the passive detection, bearing estimation, location and recognition of surface and underwater targets are realized.
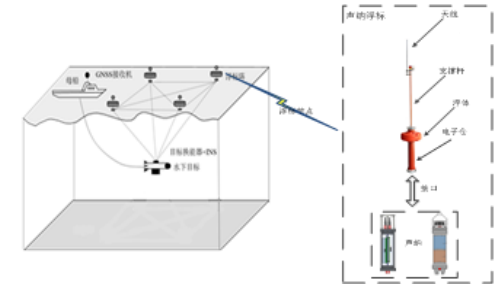
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(1) Acoustic detection products

2、Cooperative underwater acoustic detection guidance system

Main indicators :

➢ **Manner of working : initiative +passive**

➢ **Maximum detection range : Not less than 12km （Low noise underwater targets）**

➢ **Positioning accuracy : Better than 300 meters**

➢ **Probability of correct underwater target recognition : Not less than 85%**

➢ **Communication rate : 20bps~1kbps**

➢ **Cooperative guidance accuracy : Better than 100 meters**

Cooperative underwater acoustic detection guidance system

In the complex Marine environment, it realizes high-precision detection, location and recognition of underwater targets, and constructs a covert underwater acoustic communication network to realize underwater acoustic information sharing, underwater target attack guidance, underwater situation generation and other capabilities.

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(1) Acoustic detection products

3、 High precision air acoustic detection system

Vehicle high precision aeroacoustic detection system

Main indicators：

- ➤ **Detection range：≥5km（helicopter）**
- ➤ **Positioning accuracy： Better than 1 meter**
- ➤ **Probability of correct identification：≥90%**

Functions and Uses：

In extreme weather and serious clutter interference environment, this paper overcomes the shortcomings of existing radar and photoelectric detection system, and realizes long-distance search, tracking and positioning of motor vehicles, helicopters, unmanned aerial vehicles and other targets with the help of vehicle high-precision aeroacoustic detection system.

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(2) Radar and UAV prevention and control products
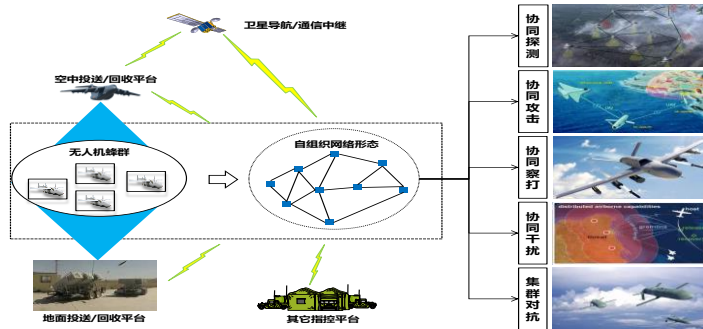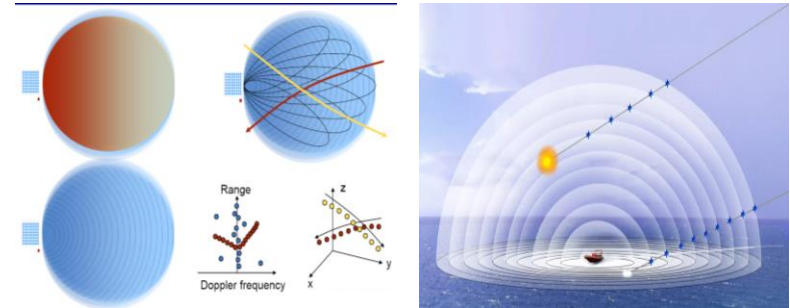
1、 Holographic gaze radar

Illustration of UAV swarm operations

Schematic diagram of the holographic gaze radar operation

Holographic gaze radar

Main indicators :

➢ **It realizes the detection of low, small and slow group targets, mainly detecting UAV and UAV swarm**

➢ **Separate sending and receiving，The receiving station works silently**

➢ **Quantity estimation accuracy：≥90%**

➢ **Detection range：≥5Km**

➢ **Range resolution：2m**

It realizes the detection, tracking and identification of low, small, slow and swarm UAV swarm, and enhances the anti-UAV swarm ability.

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(2) Radar and UAV prevention and control products

2、 Small UAV detection radar

8734

8738

Main indicators :

➤ **Operating frequency band : Ku**

➤ **8734 Distance of action :**

Small micro UAV ≥5km

Model plane ≥7km

➤ **8738 Distance of action :**

Small micro UAV ≥3km

Model plane ≥5km

➤ **Range resolution : ≤20m**

➤ **Minimum detectable height :**

Urban environment ≤10m

Mountainous environment ≤5m

Realize the prevention and control of small and micro UAV, with radar and infrared working mode; It can integrate UAV jamming equipment, laser strike equipment or UAV capture equipment to build an integrated protection system.

(2) Radar and UAV prevention and control products

3、JZ/RFEW radar

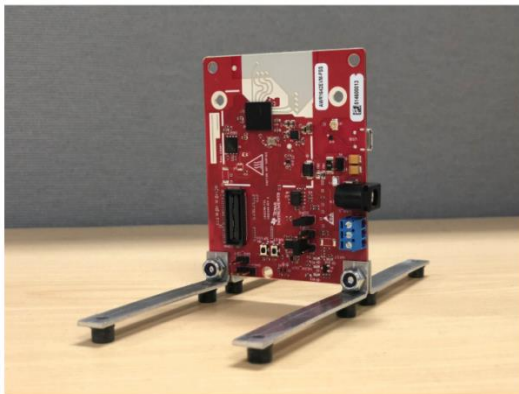Vehicle mounted radar   Fixed type radar

Main indicators :

➢ **Operating frequency band :**
   L

➢ **Distance of action :** **≥60km**

➢ **Height coverage :**
   20m~5000m

➢ **Pitch coverage :** **0°~30°**

➢ **Accuracy :** **Pitch of pitch≤**
   2°, Distance ≤30m

   It can realize all-weather detection of various small flight targets and automatic track registration, and can be used in urban air defense, terrain blind filling and other scenarios.
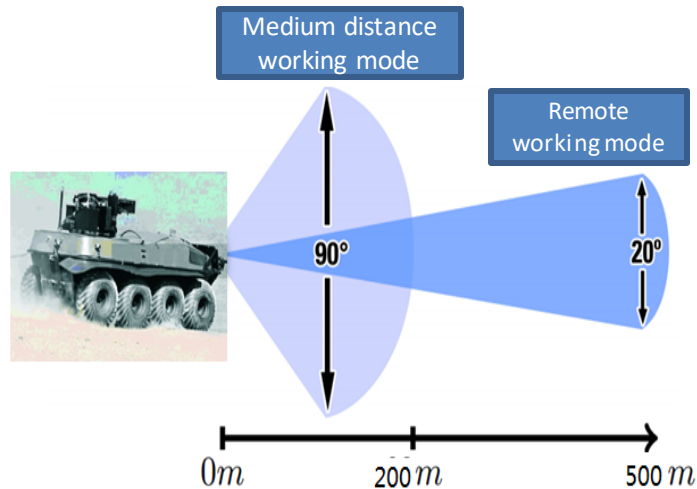
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(2) Radar and UAV prevention and control products

4、 Millimeter wave anti-collision radar

Medium distance working mode

Remote working mode

90°

20°

0m   200 m   500 m

Millimeter-wave anti-collision radar signal processing module

Mode of work： Automatic cruise control， Near-ground collision avoidance
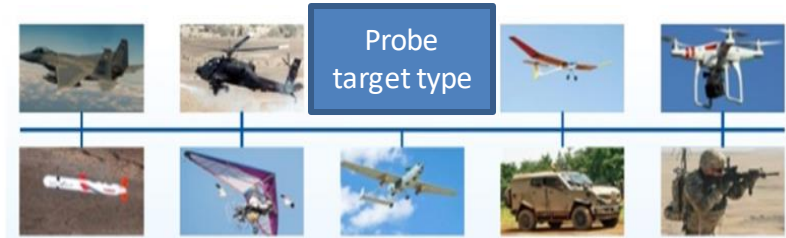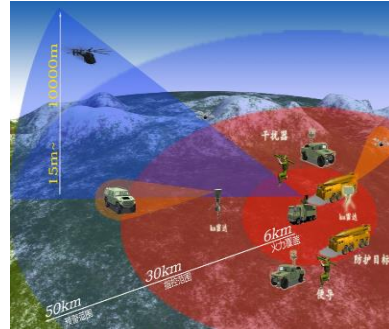
Main indicators：

➢ **Detection range： 500m~1Km**

➢ **Ranging accuracy： ±0.5m**

➢ **Speed measurement accuracy： ±0.25m/s**

➢ **Accuracy of Angle measurement： ±0.5°**

Millimeter wave anti-collision radar realizes the detection and measurement of protruding objects, peripheral targets, and terrain height, which can be used for various types of vehicle collision avoidance, helicopter low-altitude terrain perception and collision avoidance, base near-field protection and other application scenarios.

(2) Radar and UAV prevention and control products

5、 Low altitude close range defense system /Uav control system

DADS

"Big shield" low altitude ultra low altitude defense system

" Horizon line " Anti-uav system

Probe target type

Command center

Detection subsystem

Communication subsystem

Disposal subsystemsubsystem

JZ/QF-612雷达

JZ/UD-8734雷达   JZ/BS-8700雷达

自主通信
与线通信
移动通信
电台通信

干扰设备   导航诱骗

引导常规杀伤武器   激光武器

The distributed front defense system architecture is adopted, mainly based on series radar detection, integrated with optoelectronic and other detection equipment distributed networking, to realize the rapid detection and classification identification of low and slow small targets such as Uavs in the prevention and control area, and flat command and control jamming and interception equipment, navigation and deception equipment and other attack equipment, so as to quickly, efficiently and flexibly intercept and deal with incoming Uavs.

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(2) Radar and UAV prevention and control products

6、Uav control series productsLow altitude and ultra low altitude detection radar

Area air defense command and control radar	Urban low altitude early warning detection radar
Low-altitude short-range target indicating radar	Air-ground integrated detection radar
Ku-band small and micro UAV detection radar	"Look in motion" detection radar

➢6 series 17 models， Contains L、S、X、Ku、Ka etc wave band

➢Coverage of low and medium altitude → Full airspace on the ground. For DJI Elf IV 3km~18km

➢ Fixed position of position 、 Removable and flexible erection、 Look on the move, etc multiple usage patterns

➢ Mechanical scanning、 Multiple subarray、 The rotation field is omnidirectional And other multi-modal styles， Adapt to different use scenarios of users

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(2) Radar and UAV prevention and control products

7、Uav control detection disposal product series

Special detection equipment

General purpose radio detection equipment

Photoelectric detection equipment

Navigation decoy equipment

Fixed jamming equipment

Portable jamming device

Radio detection equipment： coverage **30M～6GHz**， Radius coverage **5km~10km**；

Photoelectric detection equipment： Detection range **≥20km**（ Dji Elf IV UAV target **≥3km**）， Supports multi-object detection；

Navigation decoy equipment： Time of onset **≤5s**， Distance of deception **3km~20km**；

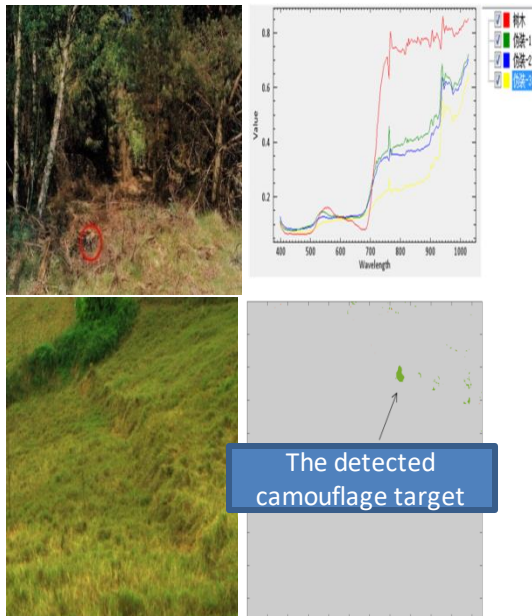Fixed jamming equipment： coverage **300M～6GHz**， distance **4km~5km**（ Upgradable 10km），Quick response target type full coverage；

Portable jamming device： **1.5GHz、2.4GHz、5.8GHz**, distance **1km~2km**, Portable, Mobile disposal.

(3) Photoelectric detection products

1、 Hyperspectral detection system

The detected camouflage target

Illustration of hyperspectral detection

Hyperspectral detection system

Main indicators :

➢ **Operating band : 0.4~0.9um**

➢ **Distance of action : Prone adult ≥2km**

➢ **Scanning time at 360° azimuth : ≤3s**

➢ **Loadable platform : fixed、 Car on board 、 Unmanned aerial vehicle, etc**

➢ **recognition : Material by Country 、Target type**

It is used in grassland, mountain wasteland and other wild environments to find and locate people and artifacts covered with camouflage equipment or hidden measures, and realize the reconnaissance and alert of hidden and disguised dangerous targets around the vehicle under moving conditions and static conditions.
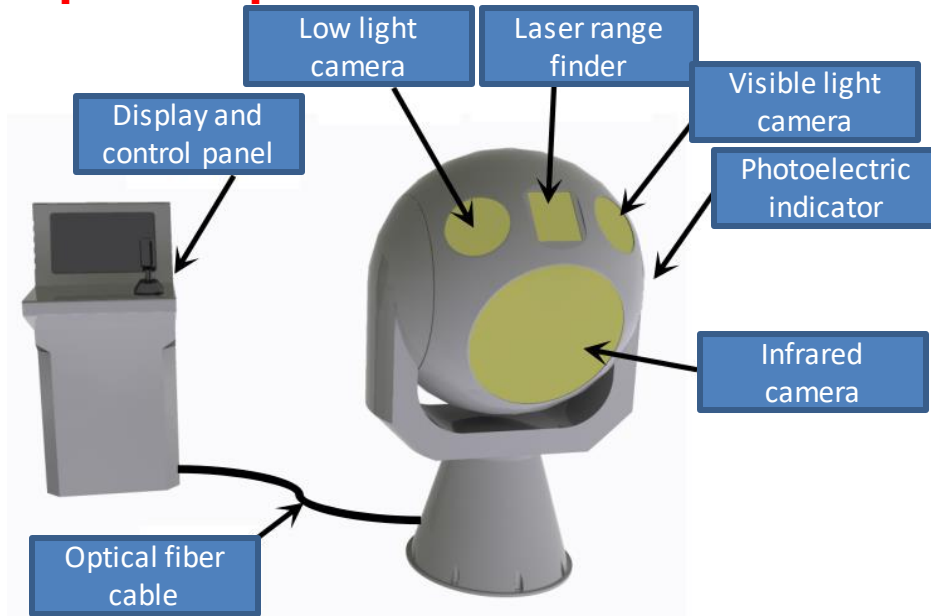
(3) Photoelectric detection products

2、 Shipborne photoelectric tracker

Low light camera

Laser range finder

Display and control panel

Visible light camera

Photoelectric indicator

Infrared camera

Optical fiber cable

Shipborne photoelectric tracker

Main indicators：

➢ **Visible light tracking distance：≥18km（Target size 10m×3m×3m)**

➢ **Low light tracking distance：≥13km（Target size 10m×3m×3m)**

➢ **Infrared tracking range：≥40km（Target size 10m×3m×3m)**

➢ **Laser ranging distance：40km（Safe ranging for human eyes， Target size 10m×3m×3m)**

➢ **Tracking Angle range： azimuth 0°～360°， Pitch of pitch -30°～+120°**

It realizes the functions of photoelectric detection, tracking and indication of surface and air targets on ships, photoelectric target recognition and classification, and provides efficient and reliable photoelectric detection and tracking means for complex sea battlefield environment.

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(4) Electronic reconnaissance product

1、 Multi-source electronic signal reconnaissance system
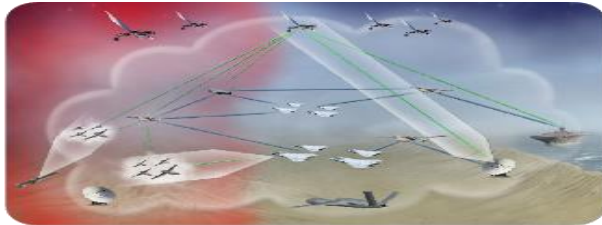
Multi-source electronic signal reconnaissance system Action diagram

Multi-source electronic signal reconnaissance system

Main indicators :

➢ **Operating frequency band : L**

➢ **Scout object : CNI System 、 radar 、 Data link, etc.**

➢ **Reconnaissance range : ≥200Km**

➢ **Positioning accuracy : Better than 2%×R (CEP)**

It can realize reconnaissance, positioning and identification of battlefield targets on airborne, vehicular, shipborne or fixed platforms, and provide information support for weapon strike guidance, combat intelligence acquisition and battlefield situation awareness.

(4)　Electronic reconnaissance product

2、Multi-point positioning system
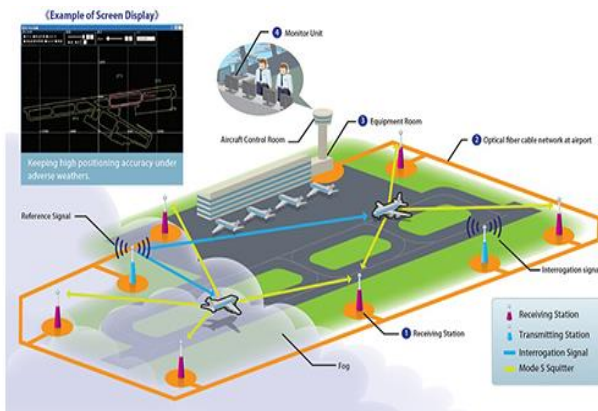
Multi-point positioning application schematic

Multi-point positioning system

Main indicators：

➢ **Operating frequency band： L**

➢ **Object of battle： airplane、 Drones, etc.**

➢ **Distance of action： 20Km**

➢ **Positioning accuracy： Better than 5m**

➢ **Number of sites： 5**

It realizes the functions of high-precision positioning of the airport for the approaching aircraft and Uavs, flight information acquisition, and blind filling in the control airspace, improves the situation awareness ability of the medium and low altitude airspace near the airport, and provides a guarantee for the flight safety of the airport airspace.

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(5) Networking and communication products

1、Intelligent broadband AD hoc network communication terminal

Intelligent broadband AD hoc network communication terminal

Main indicators：

➢ **Networking mode：AD hoc network**

➢ **Communication distance：≤10Km(At sea)**

➢ **Communication rate：**
   128kbps/2Mbps/8Mbps

➢ **Network self-healing time：≤3s**

➢ **Support 5-hop over-the-horizon data transmission, support multicast, on-demand, broadcast capabilities**

➢ **Have the ability to make independent decisions in networking**

It realizes intelligent, adaptive, anti-interference robust networking and communication capabilities under complex electromagnetic environment conditions, and is suitable for anti-interference, high-speed, high-reliability networking applications between manned and unmanned platforms such as air, ground and sea.
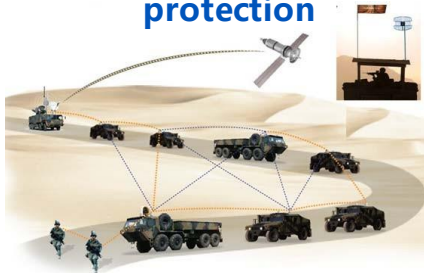
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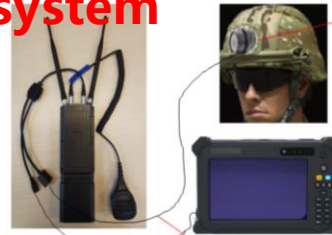
(5) Networking and communication products

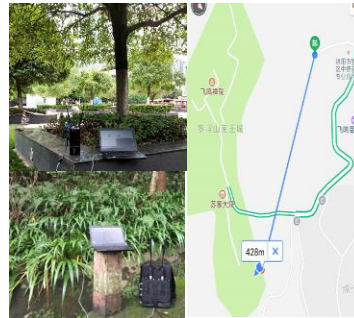### 2、 All terrain communication system

Head-mounted camera

Corridor fire protection

The vehicles form a network

Can choose wired or wireless

All terrain communication system

Main indicators :

➢ **One hop distance : 400~2000m**

➢ **Data rate : 12.8Kbps~20Mbps adaptive**

➢ **Maximum hop count : 3 hop**

➢ **Network capacity : 32**

➢ **Delay jitter : < 10ms**

It realizes reliable networking and communication in various complex geomodular environments such as mountains, forests, tunnels and tunnels, and supports the requirements of all-terrain networking and communication for a variety of applications.

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Directory

Scientific research platform

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Conditions of study

Specializing in radar IFF, air traffic control, radar, data link and communication, electronic countermeasures and other fields of research and development, with multi-field integration advantages. The research and development conditions are complete and can fully meet the needs of the project research.

Conditions of talent

- There are more than 6,500 professional and technical personnel of all kinds
- There are more than 1,000 doctoral and master's degrees
- 13 experts with special government allowance under The State Council
- 65 national, provincial and ministerial level experts
- 75 external well-known experts (5 academicians)

Assurance management

With complete qualifications and sound management system, it has formed a mature management system and operation process in equipment scientific research and production and software engineering management.
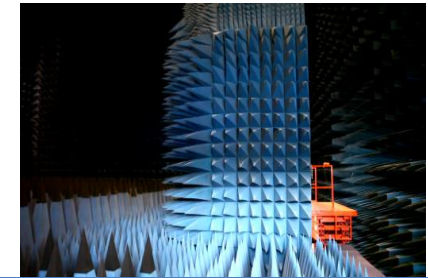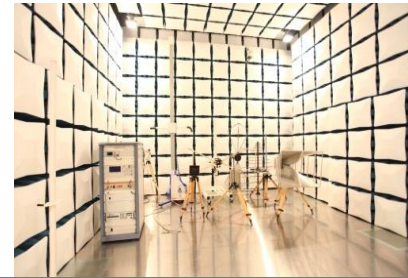
Have a perfect R & D system and outstanding R & D capabilities to meet the needs of project development.

Research and development platform

- ➢ 2 national innovation platforms

- ➢ Five provincial collaborative innovation platforms

- ➢ 5 university-enterprise joint laboratories

- ➢ 9 specialized laboratories

- ➢ Postdoctoral research workstation, academician workstation

Ability and condition

With system design, professional design, simulation test, field test and other types of design and experimental conditions, all kinds of advanced instruments and equipment more than 600 sets. With full system, full process comprehensive research and development capabilities

Have a perfect R & D system and outstanding R & D capabilities to meet the needs of independent product innovation

9 specialized laboratories

① Antenna near/far Field Integrated Testing Laboratory

② Active Phased Array Antenna Testing Laboratory

③ Multi-probe Spherical Near-Field Antenna Testing Laboratory

④ Digital Phased Array Antenna far Field Testing Laboratory

⑤ Antenna stealth characteristics testing laboratory

⑥ Millimeter Wave Lab

⑦ Transmit/Receive laboratory

⑧ Power Characteristics Laboratory

⑨ Electromagnetic compatibility laboratory

Ability to form

➢ Multi-type and multi-size antenna near/far field integrated test capability

➢ Antenna stealth characteristics test capability

➢ Microassembly, testing and testing capabilities for microwave/MMwave miniaturized components

➢ Microwave/millimeter-wave chip on-chip test, load pull test and test capabilities

➢ Power characteristic test capability based on national military standard

➢ Electromagnetic Interference test capability

Scientific research platform
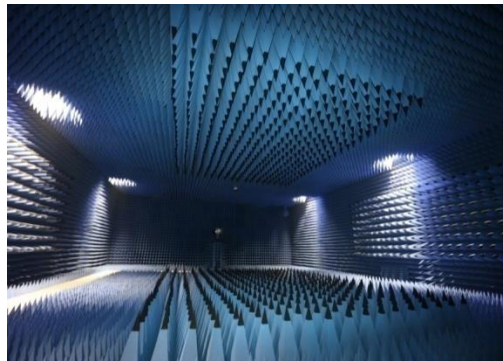
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Millimeter Wave antenna far and near field test system

Active phased array antenna test system

Field testing environment

Multi-channel antenna debugging and testing system

Test system for multi-probe spherical near-field antenna

Digital Phased Array Antenna far Field Testing Laboratory

SMT Production line

Structural parts processing

"Three prevention" treatment

➤**1** product trial production center

➤**1** integrated machining center

➤**4**production workshops

➤More than **30** specialized production lines

Environmental stress screening

Surface treatment

DL Packaging production line

- ➤ Sound and effective quality management system
- ➤ Environmental test center recognized by the state and national defense
- ➤ Complete test conditions, more than 150 sets of test equipment

Quality assurance capability

Component screening equipment

Environmental stress screening equipment

Temperature shock test equipment

With perfect quality assurance measures and means to meet the first requirements of product quality

Thank you !