

# Powering Network Experience

## Pilot Scout 4.0 Product Overview

DingLI Corporation Limited

PILOT  
SCOUT  
4.0

1 ONE

# Product Overview



## Network challenges

- Complex indoor cells with potential signal interference
- Difficult to detect potential indoor cell problems or exceptions
- 5G is moving fast

## Test and measurement challenges

- Relying on customer complaints and feedback to detect network issues
- Manual + PC-based software testing is time-consuming and laborious
- Difficulties in long-term continuous tests
- Limited terminals for 5G measurement.

## Market Requirements

- Stable network test capabilities
- 24x7 continuous and remote operation
- Autonomous data collection
- 5G devices supporting various frequencies
- can be fixed and movable deployed in different scenarios, such as 5G private network base station monitoring, 5G private network campus monitoring, and mobile testing

# Pilot Scout 4.0 meets network and market requirements

Pilot Scout 4.0, due to its portable and compact design, is not only suitable for drive test with built-in GPS, WiFi and test modules but for various test scenarios .



## Target Customers

- Mobile network operators
- Network equipment manufacturers
- Network Service providers
- Government authorities like the Telecommunications Regulatory Bodies

## Test Scenarios

Such as : Hotels, Shopping malls, Residential areas, Offices, Base stations

## Other applications

### Handheld testing

Through customized intelligent APP software connection and monitoring, it can be used as a handheld test terminal

### Autonomous Drive Test

Connect the GPS antenna to achieve pinpointing, which can be used as a mobile drive test device.

## Product features



- Compact and portable : 220\*139\*35.8 (mm)
- Light weight: about 1250g (with built-in battery)
- 24x7 autonomous mobile network measurement
- Remote control and monitoring
- Dual 5G test modules to meet NR/LTE test service
- IP65 protection
- Real- time data upload through an independent modem
- Support firmware remote auto-upgrade



## Advantages

- 1 24x7 automatic measurement and remote management through Pilot Fleet Edge
- 2 LTE/NR test service
- 3 compact and portable, professional full frequency antenna
- 4 High-performance embedded Linux systems

## Values

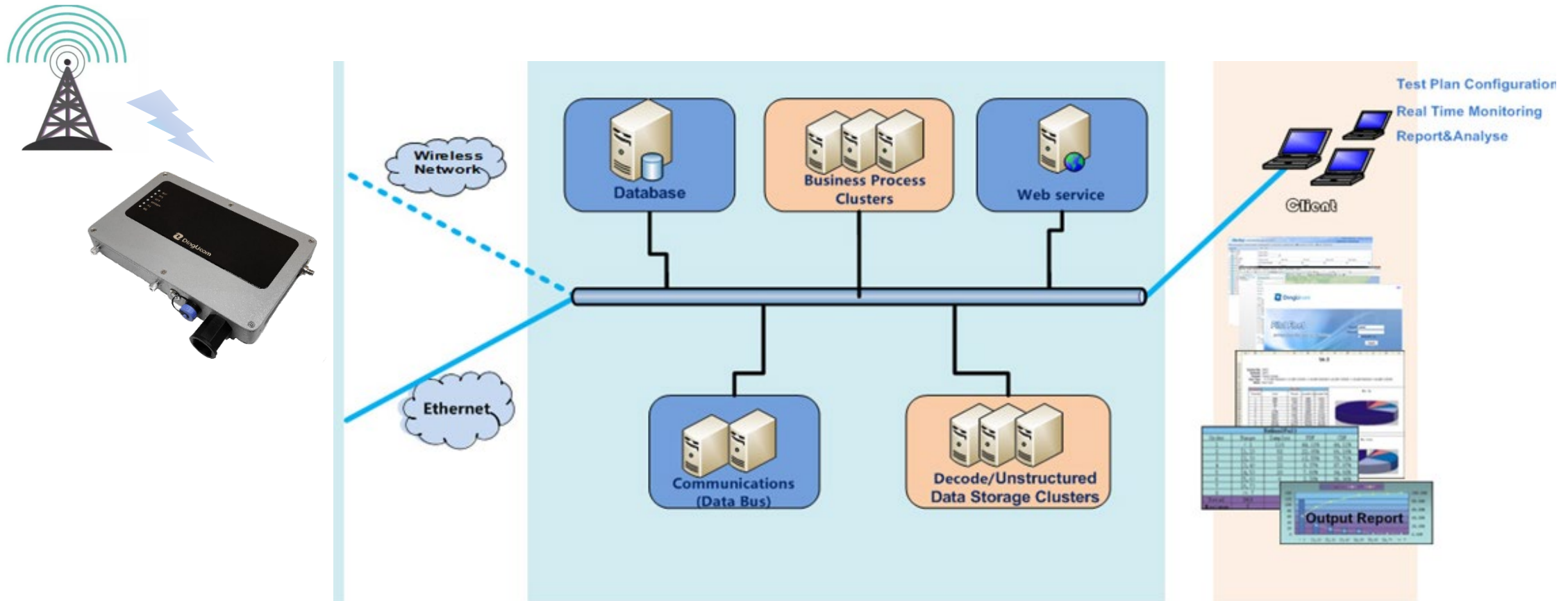
- 1 improves work efficiency, reduce manual and network cost
- 2 Real-time monitoring network status
- 3 Applicable to various indoor and outdoor test scenarios
- 4 Compact and portable

PILOT  
SCOUT  
4.0

2<sup>TOW</sup>

## Product Details

# System Architecture



- Pilot scout4.0 supports LTE/NR terminals of which can be monitored and managed through Pilot Fleet Edge.
- The device runs automatically and collects data from radio network of the user end . Network parameters and KPI are processed by pilot fleet Edge and presented on the WEB end.



# Specifications



Item	Description
Voltage and current	DC 12V , 3A
Power consumption	10W(typ.), 40W(max.)
Antenna	External antenna Full band 5G
Module	Supports up to 3 modules, One modem+2 test module
GPS	GPS/GNSS/BEIDOU multi-mode navigation, GPS can be equipped with an external antenna or a built-in antenna
Working temperature	-10 °C to +60 °C
Humidity	less than 93% RH
Dimension	220x 139 x 35.8 (mm)
Weight	1250g (with battery charger)
Memory capacity	128 GB/256 GB SSD Memory
Working hours (using battery only)	170~200 minutes
SIM	Nano SIM card
USB	Type-C interface (only USB2.0)



**Pilot Scout 4.0**

## Service Function

- Supports SA/NSA/LTE
- Various network service test
- Real- time data upload through an independent modem

## Monitoring Function

- Monitor various test information such as parameters, events, alarms, and test plans through Web browser
- Monitor test status upon connection to Pilot Watcher on tablet.

## Device Performance

- DC 12V ,for various test scenarios
- Support dual 5G module test, external full-band antenna.
- High-speed and large storage capacity to meet the requirements for long- duration data storage
- High-performance X86 CPU and low power consumption to ensure long-term continuous operation

# Panel indicator



## Indicators description

### M1/M2

- Flashing green: the test module is working normally
- Solid green: Module Energized

### SYS

- Flashing green: System operating normally
- Solid red: System shutdown or reboot

### BAT

- Flashing green : battery charging
- Solid green: battery fully charged
- Flashing red: low battery alarm
- Solid red: internal battery power supply
- Solid orange: battery abnormal (high temperature or damage)

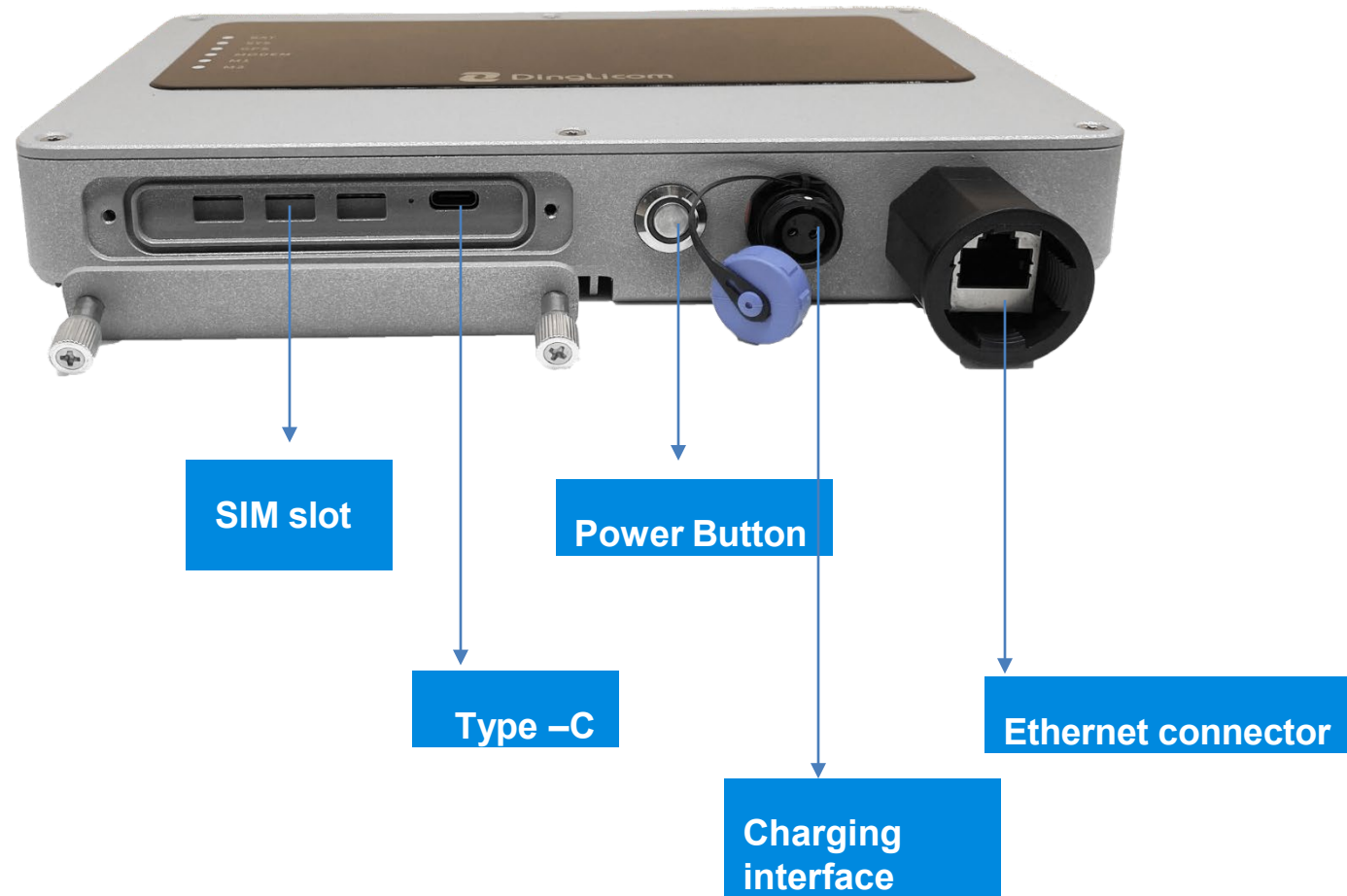
### MODEM

- Flashing green: normal connection to Pilot Fleet Edge
- Solid green : Module initialized successfully

### GPS

- Flashing green: normal search and positioning
- Solid green : Module initialized successfully

# Appearance and Buttons





Pilot Scout supports the following services test:

## LTT/NR Data Service

- FTP Download/Upload
- HTTP Download
- HTTP Page
- Video Play(Youtube)
- PING
- Speed test
- iperf uplink/downlink
- SMS
- Email
- MOC/MTC (POLQA MOS)
- PBM sampling bandwidth



# Supported Data Format



Pilot Scout 4.0 supports various data format, e.g. \*.rcu, \*.dcf, \*.cti, \*.DTlog, \*.cu, etc.

## Data generation (save) formats and data upload formats can be set in Pilot Fleet Edge

- Data generation format: The test device generates log files with .dcf suffix by default, which can be configured through the web while generating logs in other formats, such as .ORG raw data,.ddib, etc., with subsequent support for Qualcomm's DLF format.
- Data upload format: Logfiles are uploaded in \*.rcu format by default, but users can also select other data upload formats.

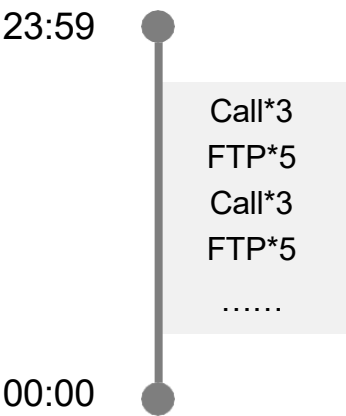


* Generate Format:	<input type="checkbox"/> *.ORG.RCU <input checked="" type="checkbox"/> *.DCF <input type="checkbox"/> *.DDIB <input type="checkbox"/> *.nCTI <input type="checkbox"/> *.DTLOG <input type="checkbox"/> *.CU
* Transmit Format:	<input type="radio"/> *.ORG.RCU <input checked="" type="radio"/> *.DCF <input type="radio"/> *.nCTI <input type="radio"/> *.DTLOG <input type="radio"/> *.CU <input type="checkbox"/> PCAP <input type="checkbox"/> MOS <input checked="" type="checkbox"/> DFL



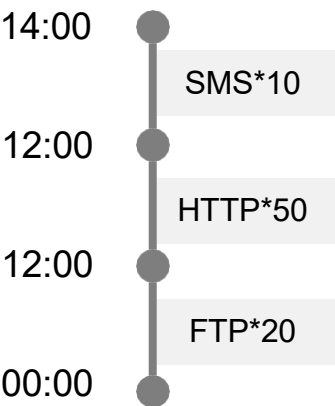
## One big loop with multiple small loops embedded

Test from top to bottom within the business timeframe.  
Each task is a small loop



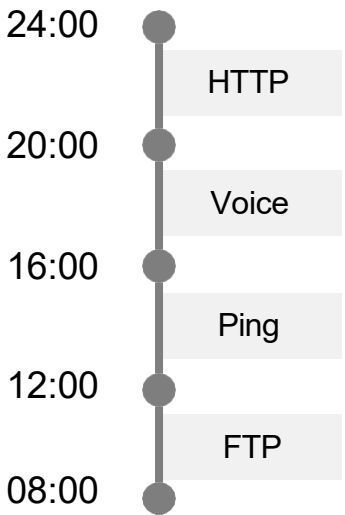
## Separation of different test tasks by time period

Each time period performs only its own test task.  
Each task loops only in its own time period.



## Control test by number of times

The number of executions can be remembered even if the computer is shut down or rebooted during the task time.





Users can monitor device status on Pilot Fleet Edge sever. Device status, online duration, speed, longitude, latitude, battery charge, CPU temperature, memory space left, disk space left, file numbers, file size and firmware version are displayed under the **Device Status**.

Summary

Device Status

Alarm Information

Event Information

Login Log

State Statistics

Path Monitor

Device Log

Device Type

Select Device

Device Status

Keyword

Please Select

Please Select

Please Select

Please enter keyword

Q Search

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

<input type="checkbox"/>	Device Name	Device Type	Device Group	Device Status	Online Duration (h)	Last Active	Speed	Longitude	Latitude	Battery Charge (%)	Temperature	Memory S	Actions
<input type="checkbox"/>	Scout4.0	RCU	自动路测	Online	0.05	2022-11-16 10:59:29	0.76	113.553833007...	22.3929691314...	97	42	0.77	<div><div>📄</div><div>🔍</div></div>
<input type="checkbox"/>	111	ATU	产品演示	Offline	0.04	2022-11-14 14:50:40				0	0	0.00	<div><div>📄</div><div>🔍</div></div>
<input type="checkbox"/>	1222	Matrix	自动路测	Offline	0.03	2022-10-31 16:48:21				97	30	6.36	<div><div>📄</div><div>🔍</div></div>



# Real-time Monitoring of Alarms



- Uploads alarms information to Pilot Fleet Edge server through Modem for real-time monitoring.
- Displays the alarm content on Pilot Fleet Edge at the first time.
- Supports filtering alarm information by device, event range, alarm code, etc.

Summary	Device Status	Alarm Information	Event Information	Login Log	State Statistics	Path Monitor	Device Log
Select Device	Port	Alarm Time	Alarm Level	Alarm Code	Keyword	Sort by	
Please Select	Please Select	 Start Time - End Time	Please Select	Please enter content	Please enter keyword	Descend	 Search
 Auto Refresh							
Alarm Level	Alarm Time	Alarm Content	Device Name	Port	Device Group	Alarm Code	Clear Time
Important	2022-11-16 11:02:56	Valid GPS data.	Scout4.0	0	自动路测	0x00120b	-
Important	2022-11-16 10:59:32	Invalid GPS data.	Scout4.0	0	自动路测	0x00120a	-
Important	2022-11-16 10:59:28	Invalid GPS data.	Scout4.0	0	自动路测	0x00120a	-

# Real-time Monitoring of Events

- Uploads test events to Pilot Fleet Edge server through Modem for real-time monitoring.
- Monitors the test in real time.
- Support filtering events by device, time range, test channel number, event code, etc.

Summary

Device Status

Alarm Information

Event Information

Login Log

State Statistics

Path Monitor

Device Log

Select Device

Port

Event Time

Event Code

Keyword

Sort by

Please Select

Please Select

Start Time

End Time

Enter event code

Please enter keyword

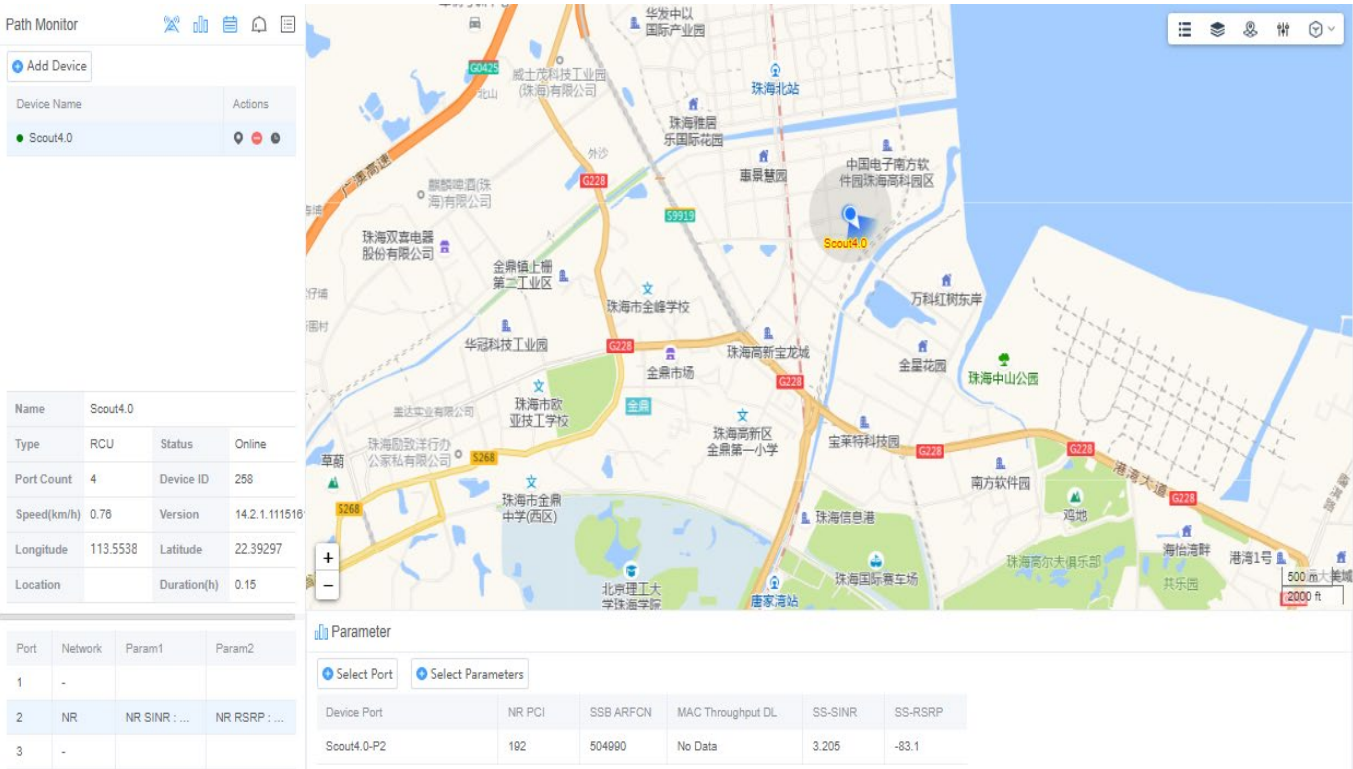
Descend

Q Search

» Auto Refresh

Event Time	Event Name	Device Name	Port	Device Group	Type	Event Code
2022-11-16 11:01:53	<div><div></div>FTP_DL_TCPSlow</div>	Scout4.0	2	自动路测	Realtime	0x00008d
2022-11-16 11:01:53	<div><div></div>FTP Download First Data</div>	Scout4.0	2	自动路测	Realtime	0x000082
2022-11-16 11:01:50	<div><div></div>FTP Download Send RETR,FileSize:10737418240Byte;</div>	Scout4.0	2	自动路测	Realtime	0x000081
2022-11-16 11:01:50	<div><div></div>FTP Download Reset Support</div>	Scout4.0	2	自动路测	Realtime	0x000086
2022-11-16 11:01:50	<div><div></div>FTP Download Login Success,Delay:87ms;</div>	Scout4.0	2	自动路测	Realtime	0x00008a
2022-11-16 11:01:50	<div><div></div>FTP Download Connect Success,Delay:62ms;</div>	Scout4.0	2	自动路测	Realtime	0x000088
2022-11-16 11:01:50	<div><div></div>FTP Download Connect Request,FtpType: FTP;FileName:/read/10GB;ServerName:218.204.180.104;SourceIP:10.72.2.181;</div>	Scout4.0	2	自动路测	Realtime	0x000080
2022-11-16 11:01:50	<div><div></div>ATD Finished,Result:Success;</div>	Scout4.0	2	自动路测	Realtime	0x000071
2022-11-16 11:01:35	<div><div></div>PPP Dial Request,TestType:1;NetFlag: China Mobile Net;</div>	Scout4.0	2	自动路测	Realtime	0x000070
2022-11-16 11:00:52	<div><div></div>Tag Event,Count:21;TagContext:IMSI=460075067266725;</div>	Scout4.0	2	自动路测	Realtime	0x000194
2022-11-16 11:00:31	<div><div></div>ATD Finished,Result:Success;</div>	Scout4.0	1	自动路测	Realtime	0x000071
2022-11-16 11:00:26	<div><div></div>PPP Dial Request,TestType:0;NetFlag: China Mobile Net;</div>	Scout4.0	1	自动路测	Realtime	0x000070
2022-11-16 11:00:20	<div><div></div>Tag Event,Count:21;TagContext:IMSI=460115022058801;</div>	Scout4.0	1	自动路测	Realtime	0x000194

# Real-time Monitoring of Location and Parameters



- GPS measurement routes and position information
- Customized radio parameters monitoring
- Simultaneous presentation of multi-port events

Event

Scout4.0 Select Port

Port	Time	Event Name
Scout4.0-P2	11:06:47	FTP_DL_TCPSlow
Scout4.0-P2	11:06:47	FTP Download First Data
Scout4.0-P2	11:06:45	FTP Download Send RETR,FileSize:10737418240Byte;
Scout4.0-P2	11:06:44	FTP Download Reset Support
Scout4.0-P2	11:06:44	FTP Download Login Success,Delay:87ms;
Scout4.0-P2	11:06:44	FTP Download Connect Success,Delay:40ms;
Scout4.0-P2	11:06:44	FTP Download Connect Request,FtpType: FTP;FileName:/read/10GB;ServerName:218.20...
Scout4.0-P2	11:06:28	FTP Download Disconnect
Scout4.0-P2	11:06:28	FTP Download Last Data,ActualSize:10764936504Byte;TransmitTime:275006ms;
Scout4.0-P2	11:01:53	FTP_DL_TCPSlow
Scout4.0-P2	11:01:53	FTP Download First Data
Scout4.0-P2	11:01:50	FTP Download Send RETR,FileSize:10737418240Byte;

# Real-Time Indoor&Outdoor Test and Monitoring Scenarios



**Pilot Scout 4.0**



**BUS**



**TAXI**



**TRAIN**



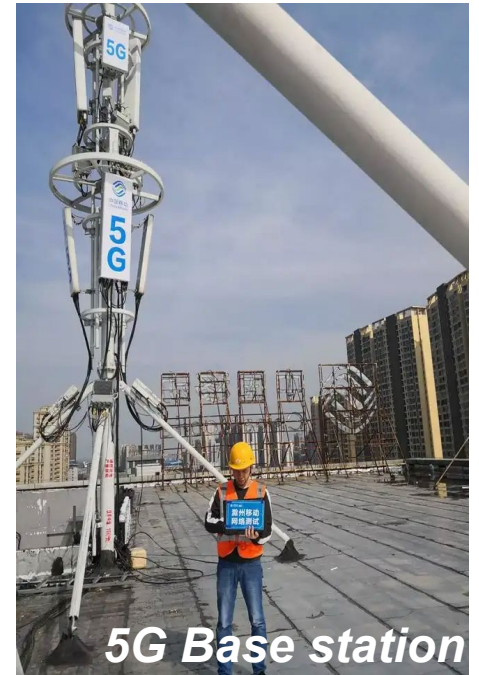
**UAV**



**robot**



**SHIP**



**5G Base station**

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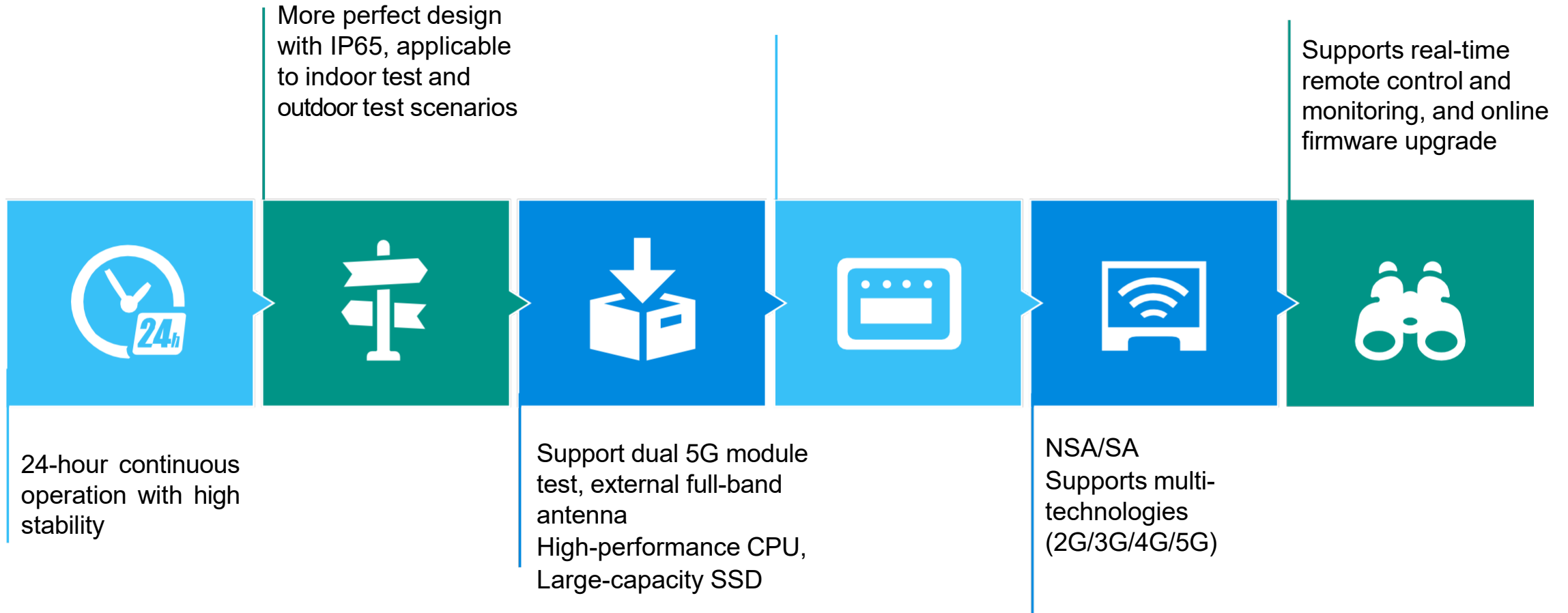
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# 3

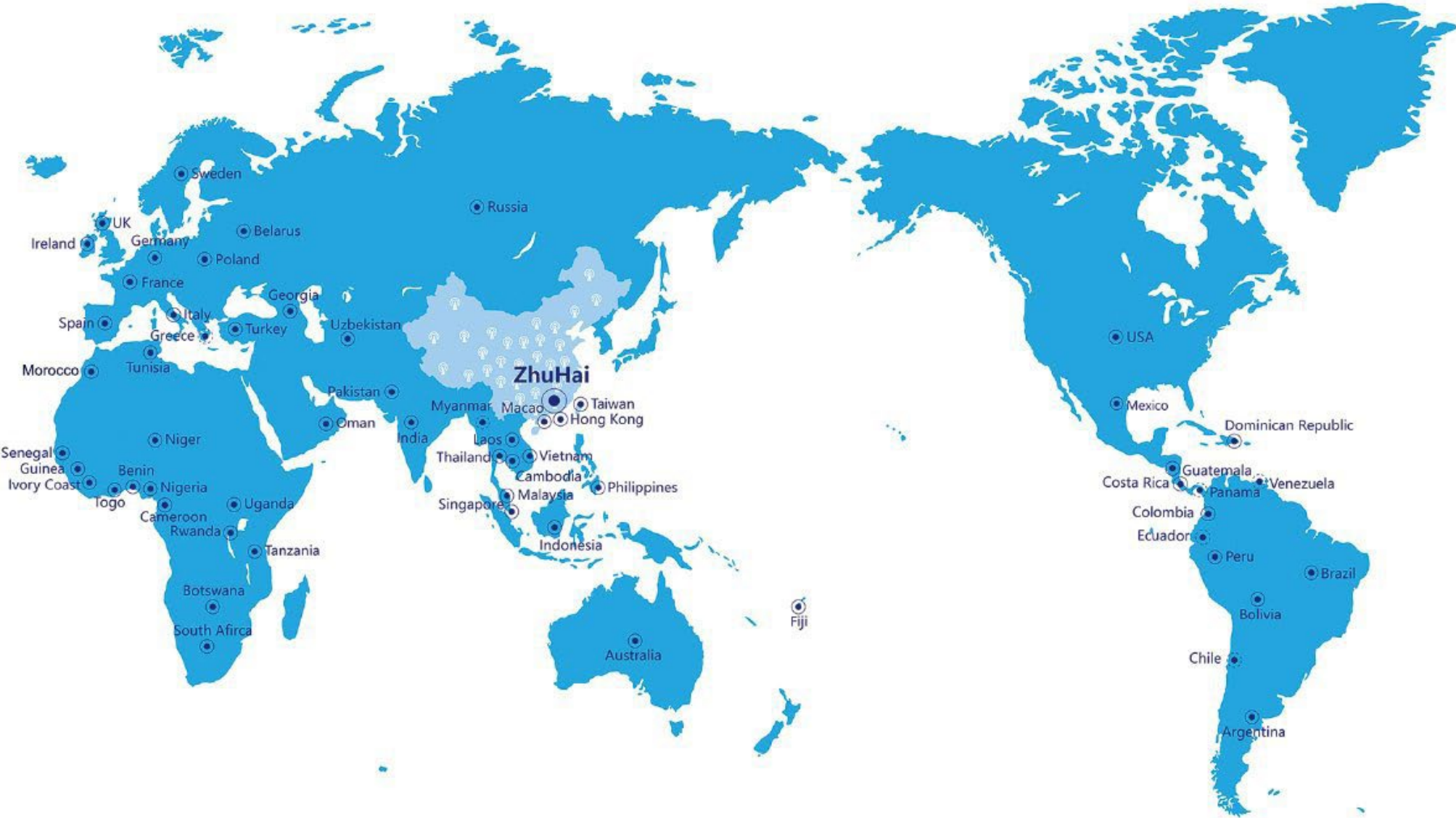
## Conclusion



# Conclusion



Customer Base





**Thank you for  
your support!**



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