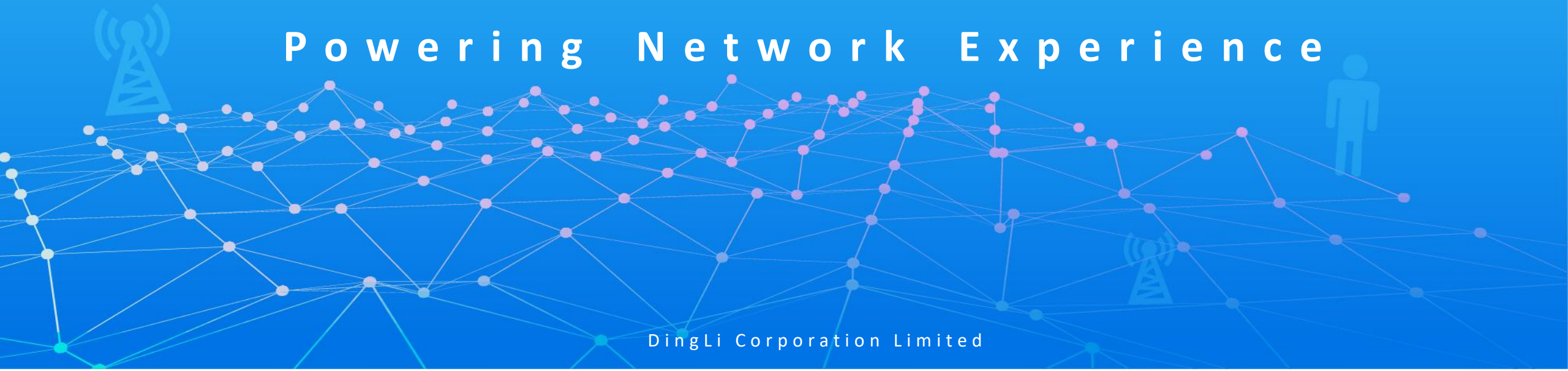
Pilot Walktour Pack4.8

Powering Network Experience



DingLi Corporation Limited

DingLicom
Powering Network Experience

telecom.dingli.com

PILOT WALKTOUR PACK

1 ONE

Product Overview

Overview

- Pilot Walktour Pack is a portable multi-device and multi-technology field test solution in a backpack. A tablet controller unit is used to manage all the test configuration and real-time measurement. The robust chassis was designed with processing power and secure device connectivity to handle multi-device testing or multi-network benchmarking.
- Pilot Walktour Pack’s unique design and portability enable users to conveniently perform outdoor and indoor mobile network.

Operational efficiency

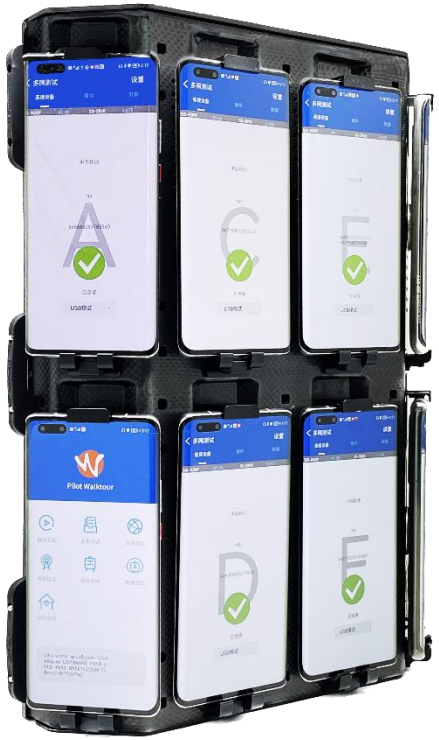
Centralized control

Comprehensive information

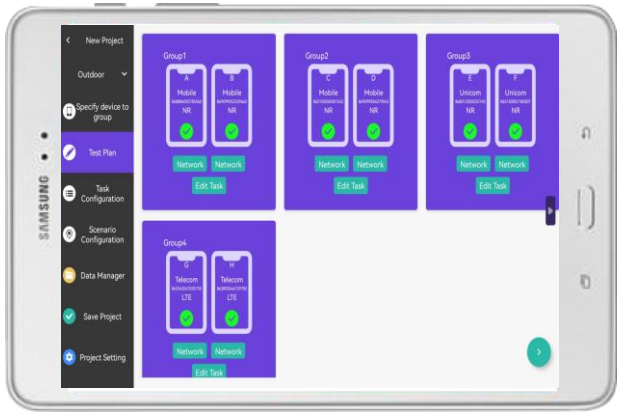
Pilot Walktour Pack

Backpack 1.0

Backpack 2.0



Controlling Chassis



Tablet
Controller

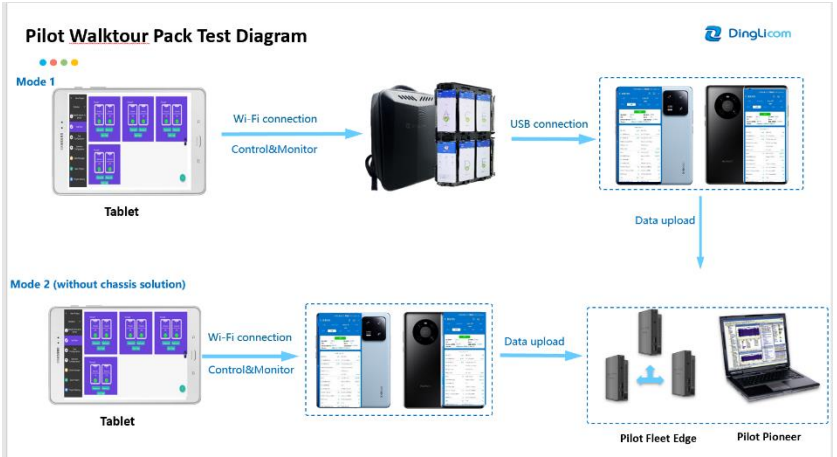
Benefits compared to traditional

Powerful, portable, simple operation for benchmarking testing

Traditional Test Drivel

- Multiple test devices for network benchmarking. Not portable enough due to equipment set up
- Connection via cable or USB port
- Sufficient power solution needed for continuous outdoor tests
- Mostly dependent on Android based devices

Pilot Walktour Pack



- Portable, a backpack contains all test devices
- Built-in battery, Continuous test capability: up to eight hours
- Connection with WiFi or data cable, Stable, and easy for commissioning
- Multiple commercial handsets used for testing

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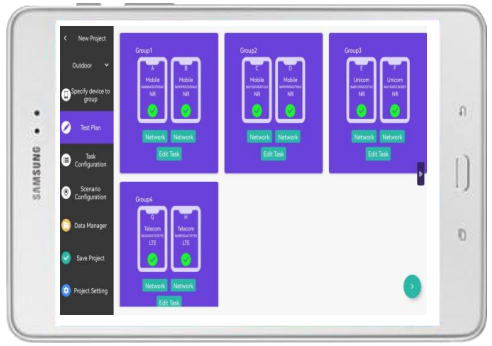
Product Details

Pilot Walktour Pack Test Diagram

Mode 1



Tablet

Wi-Fi connection

Control&Monitor

USB connection

Data upload

Mode 2 (without chassis solution)

Tablet

Wi-Fi connection

Control&Monitor

Data upload

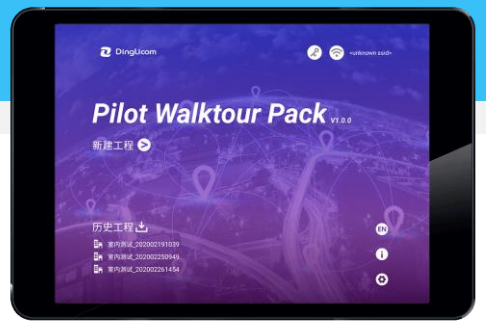
Pilot Fleet Edge

Pilot Pioneer

Our Solution

Tablet

- Controller
- Configure test terminal groups
- Deliver test plans
- Manage data files
- Monitor test terminals and test progress
- Display real-time measurement information



Mobile Phone

- Test terminal
- Based on Harmony OS / Android OS mainstream commercial terminals for measuring mobile network
- Supports GSM/UMTS/LTE/NR network technologies
- Captures L1/L2/L3 signaling messages

Pilot Walktour Pack Chassis and Backpack

- Up-to 8-14 test terminals (where max. 8 may be used for simultaneous MOS test)
- Connect to Android tablet over Wi-Fi
- Automatic detection for connectivity
- Unique QR code on each chassis for connectivity to the respective Pilot Walktour Pack software.

Our Solution

Portable benchmarking test

- Compact and lightweight
- Simultaneous multi-network testing
- Managed by one engineer during the whole testing
- Customized test groups

Meet users' needs

- Based on Qualcomm/HiSilicon chipset of Commercial mobile phones
- Collects various radio access network parameters

Pilot Walktour Pack

Various test services

- CS Call, CSFB, VoLTE, VoNR, EPS fallback
- FTP, Ping, Email, HTTP Page, Parallel Service, Video Play, HTTP Download, PBM, Speedtest, TCP/IP, etc.

Network Measurement

- Outdoor and Indoor tests
- Outdoor GPS positioning and automatic indoor positioning with Gyroscope
- Real-time test progress and information
- Centralized data management

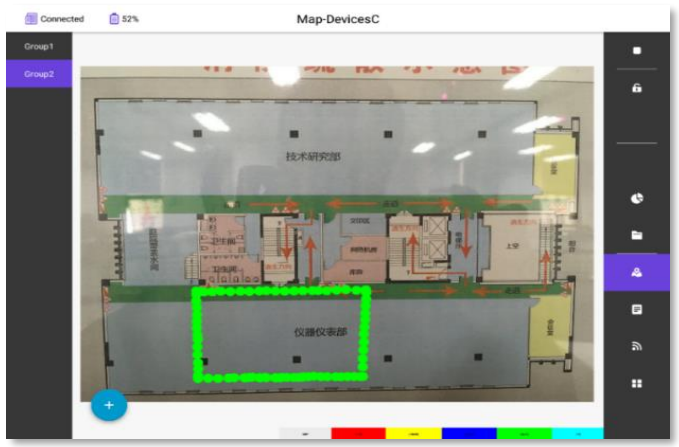
Application Scenarios (1)

Test Anytime and Anywhere

Indoor test

Such as passenger lifts, stairs, shopping centers, residential and commercial buildings, etc.

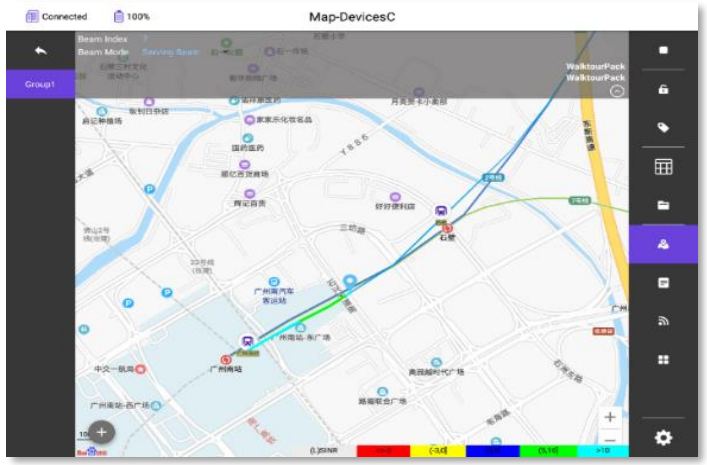
- Pre-defined floor plans
- Automatic/manual pinpointing
- Indoor coverage distribution display
- JPG/PNG/BMP map import
- Automatic map import for indoor testing
- Log files storage according to the floors



Outdoor test

Such as highways, high-speed rail, scenery spots, campus, tunnel, etc.

- Built-in/external high- performance GPS
- Google online/offline Maps
- Real-time GPS coverage
- User-defined parameter display
- Site details verification



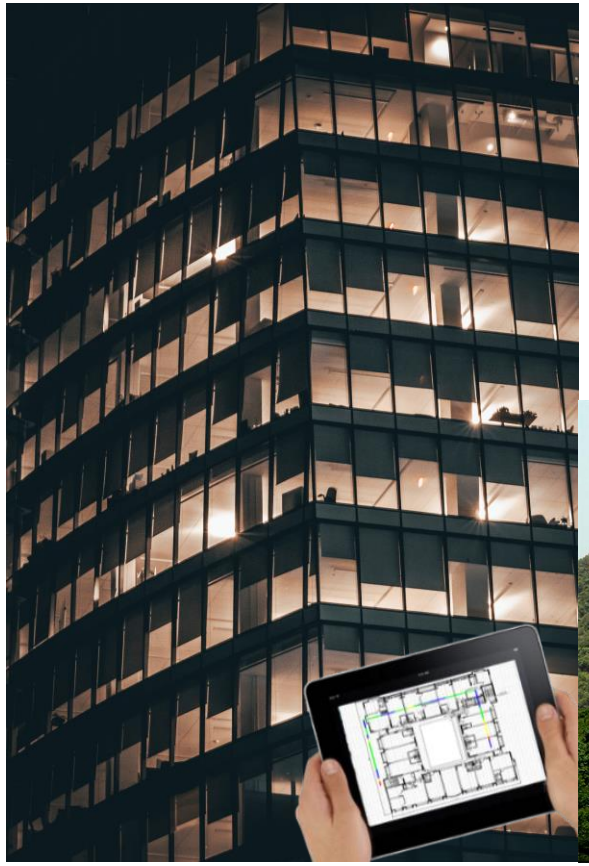
Application Scenarios (2)

Indoor test:

hotel

buildings,

Offices, etc.



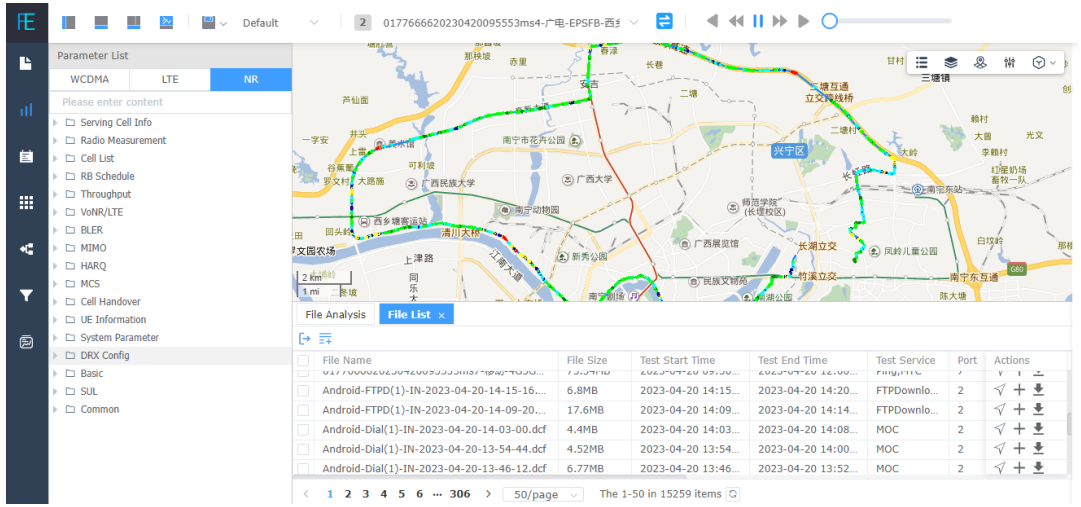
Outdoor test:

road, high-speed rail,

schools,scenery spots,etc.

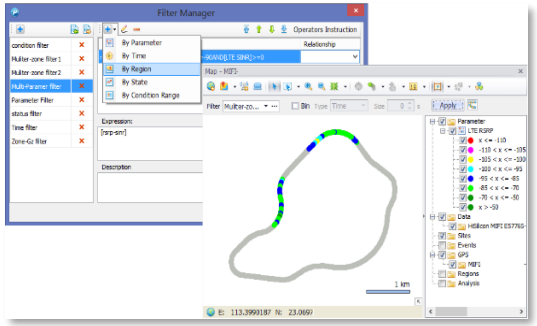
Centralized Data Management and Analysis

Upload data files to Pilot Fleet Edge for centralized management and specialized analysis



- Parameter Query
- Events Query
- Parameter Associate Analysis
- Permeability Analysis
- Qualified Coverage Analysis
- Antenna Reverses Analysis
- Region Comparison
- Period Based Comparison
- Operator Comparison
- Route Completion
- Cell Statistics Analysis
- 4G/5G Exception Analysis

Import data files to Pilot Pioneer Expert for professional analysis



- Data Insight
- Measurement over Distance Analysis
- Parameter Quadrant Analysis
- Overshooting Analysis
- Extended Coverage Analysis
- Coverage Rate Analysis
- Overlapping Coverage Analysis
- Antenna Feeder Reversed Analysis
- Mod3 Analysis
- Pilot Pollution Analysis
- Cell Coverage Analysis
- Cell Statistics and Analysis
- MO/MT Union Analysis
- CSFB Exception Analysis
- Delay Analysis

PILOT WALKTOUR PACK

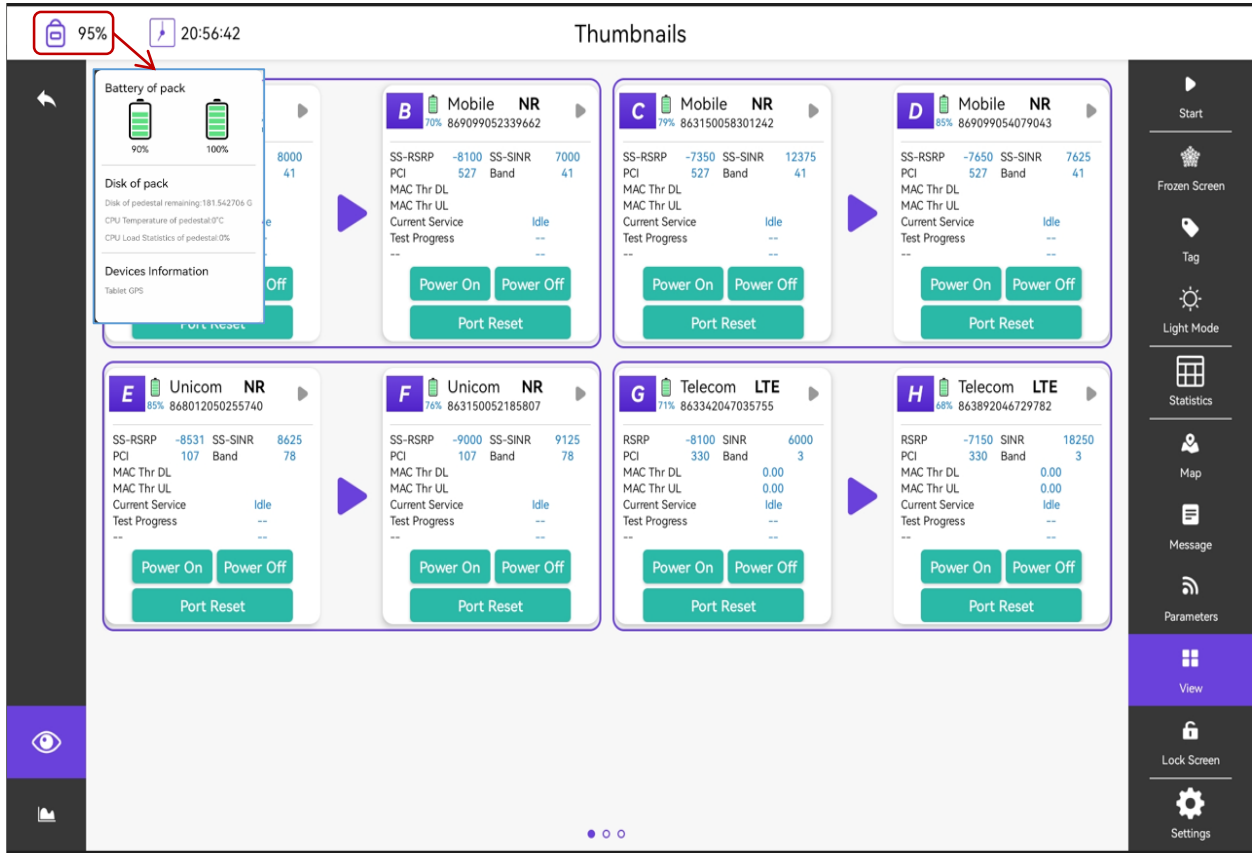
3 THREE

New Features

New Features

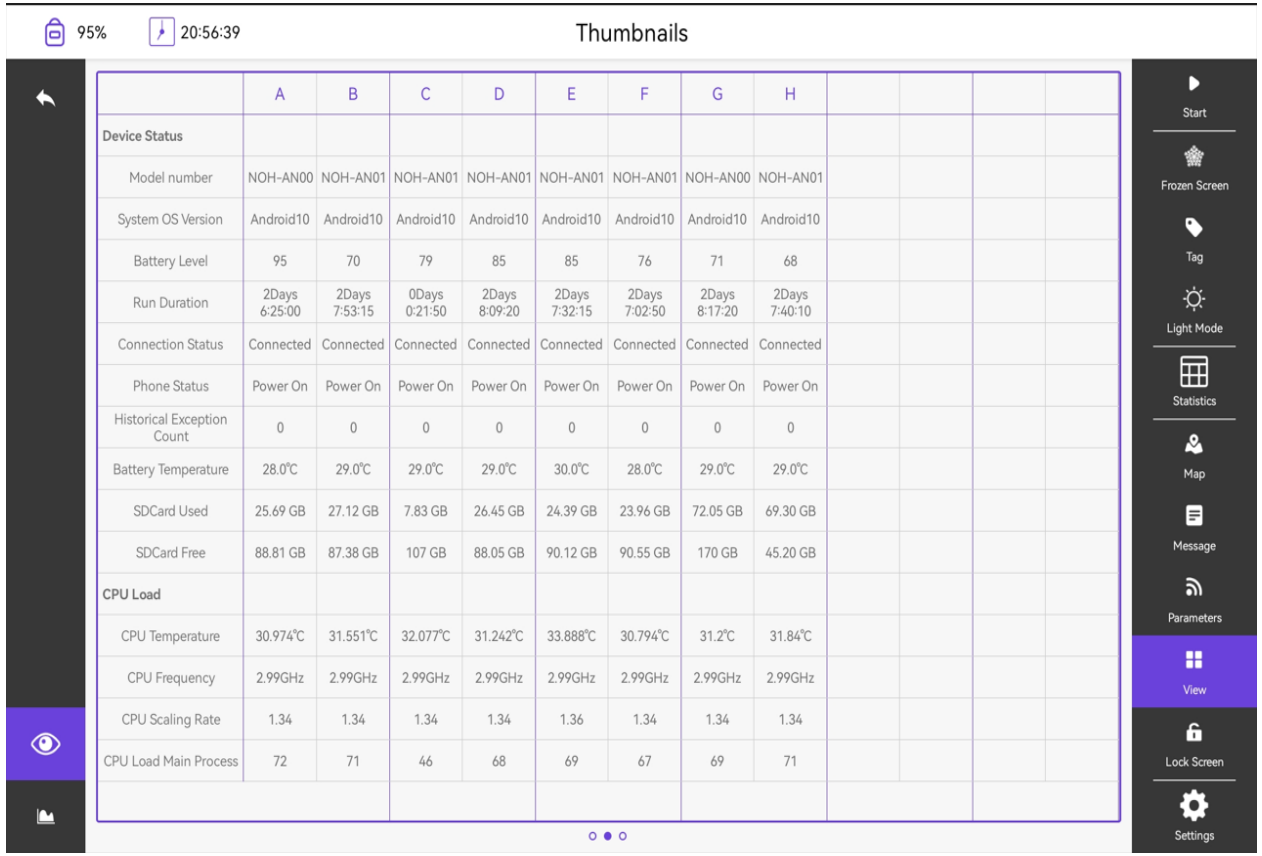
Battery Life Indicators

- battery life of backpack controller
- Low battery alert



Cell phone Indicators

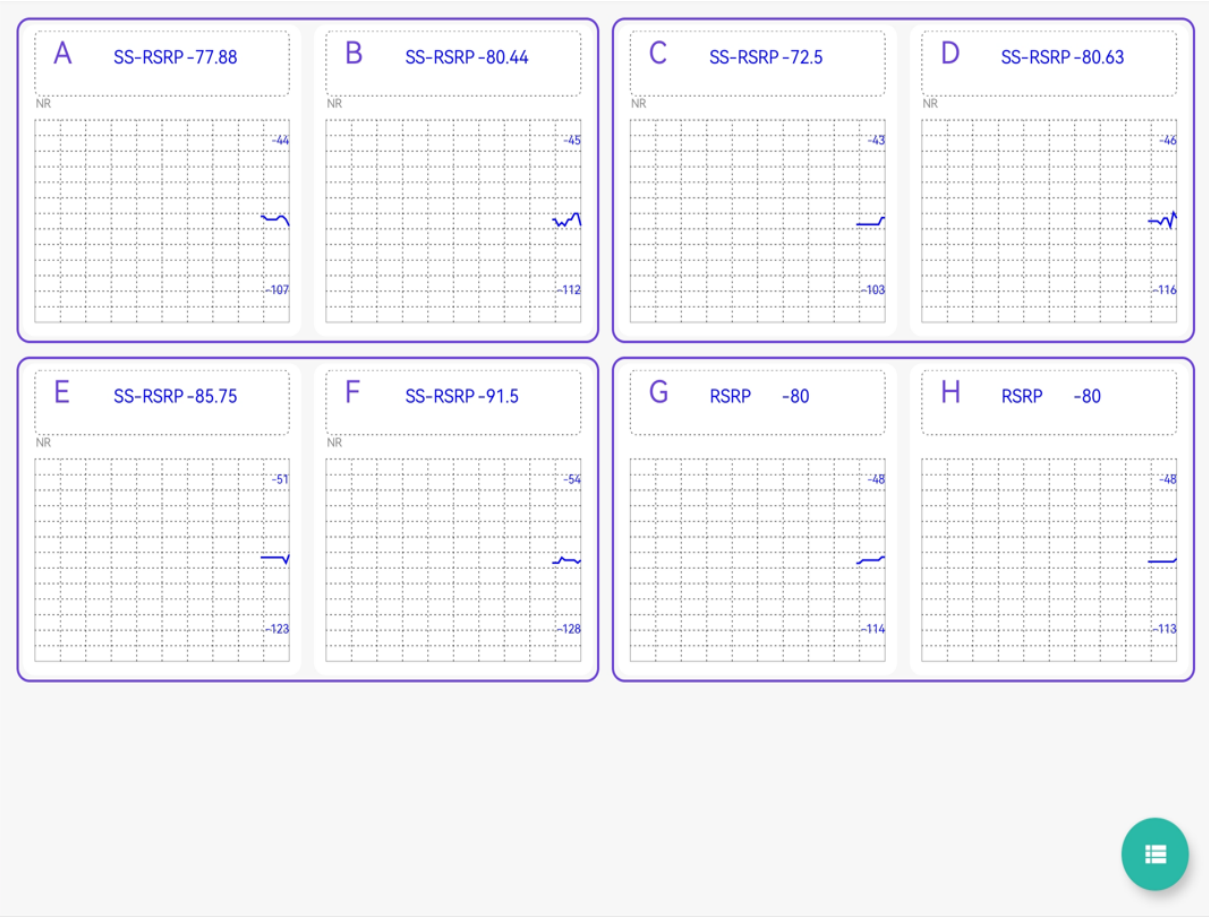
- battery life and temperature indicator
- CPU temperature

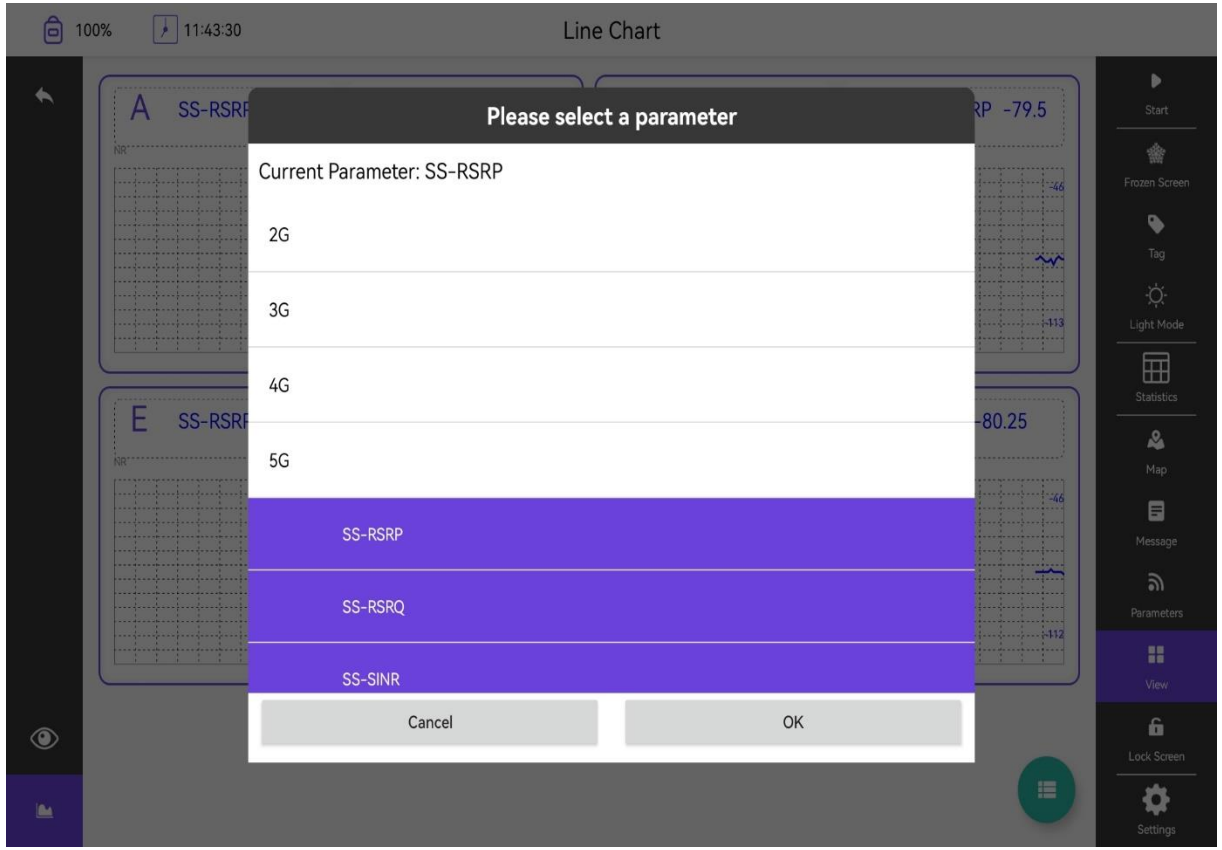


	A	B	C	D	E	F	G	H
Device Status								
Model number	NOH-AN00	NOH-AN01	NOH-AN01	NOH-AN01	NOH-AN01	NOH-AN01	NOH-AN00	NOH-AN01
System OS Version	Android10	Android10	Android10	Android10	Android10	Android10	Android10	Android10
Battery Level	95	70	79	85	85	76	71	68
Run Duration	2Days 6:25:00	2Days 7:53:15	0Days 0:21:50	2Days 8:09:20	2Days 7:32:15	2Days 7:02:50	2Days 8:17:20	2Days 7:40:10
Connection Status	Connected	Connected	Connected	Connected	Connected	Connected	Connected	Connected
Phone Status	Power On	Power On	Power On	Power On	Power On	Power On	Power On	Power On
Historical Exception Count	0	0	0	0	0	0	0	0
Battery Temperature	28.0℃	29.0℃	29.0℃	29.0℃	30.0℃	28.0℃	29.0℃	29.0℃
SDCard Used	25.69 GB	27.12 GB	7.83 GB	26.45 GB	24.39 GB	23.96 GB	72.05 GB	69.30 GB
SDCard Free	88.81 GB	87.38 GB	107 GB	88.05 GB	90.12 GB	90.55 GB	170 GB	45.20 GB
CPU Load								
CPU Temperature	30.974℃	31.551℃	32.077℃	31.242℃	33.888℃	30.794℃	31.2℃	31.84℃
CPU Frequency	2.99GHz	2.99GHz	2.99GHz	2.99GHz	2.99GHz	2.99GHz	2.99GHz	2.99GHz
CPU Scaling Rate	1.34	1.34	1.34	1.34	1.36	1.34	1.34	1.34
CPU Load Main Process	72	71	46	68	69	67	69	71

New Features

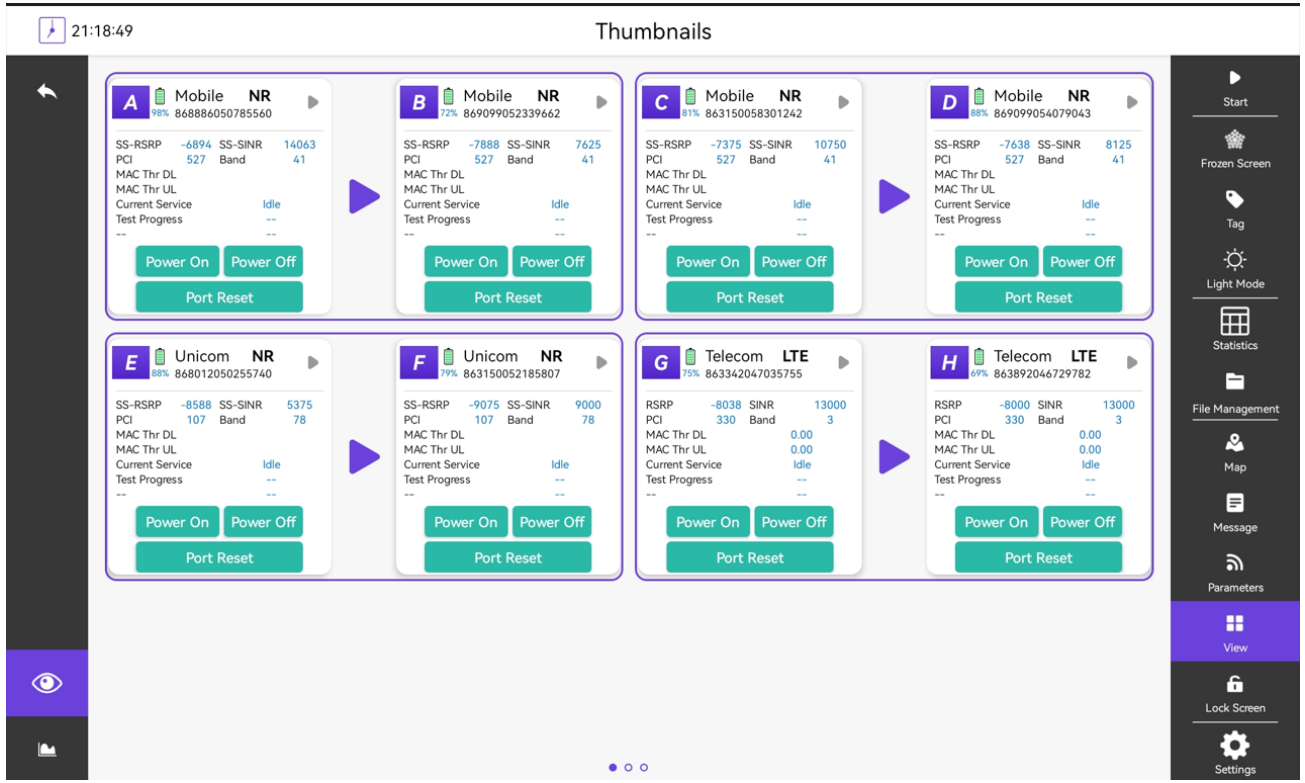
Self-defined parameters

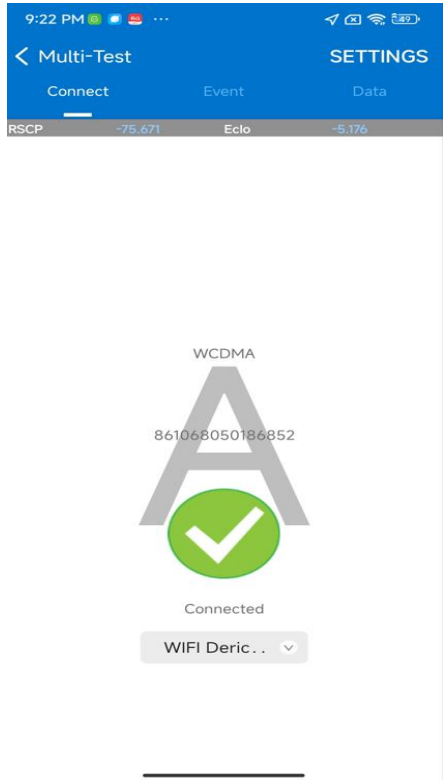




Added Backpack without Controlling Chassis Solution

Without Controlling Chassis, only a tablet and test devices can complete tests.



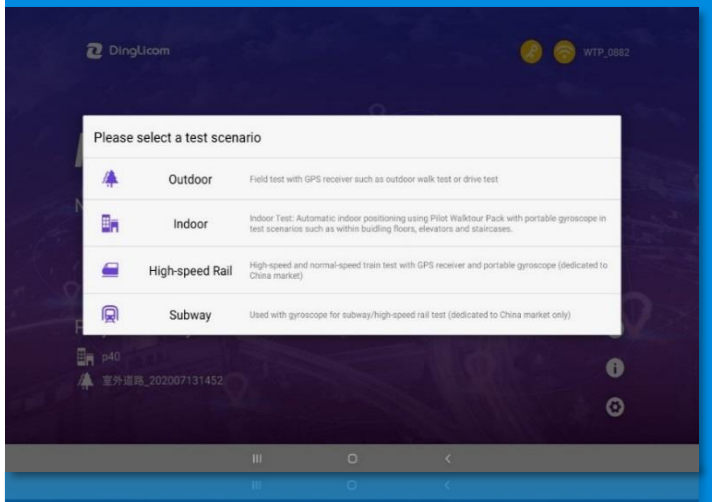


Specification

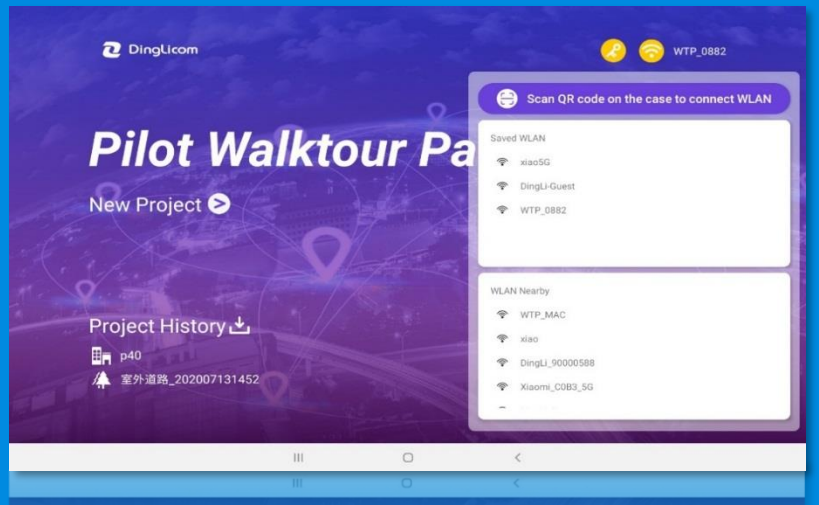
- Dimension (mm)： 400*300*72mm
- Weight: About 3.05Kg
- Battery: 10.8V, 6800mAh*2
- OS: Windows
- CPU: Intel X86 processor
- GPS： EM1612
- Max. External Terminals: 14 handsets
- Data Transmission Mode: Wi-Fi
- Working Current: 5A (Max. with 19V external power supply
- Quick Charge: 2 hours (8 handsets with full charge)
- Plug Name: DC charger
- Working Temperature: -10℃ to +40℃
- Storage Temperature: 45℃ to +85℃
- Humidity: 93%RH， +40℃

New UI Design and Connection Mode

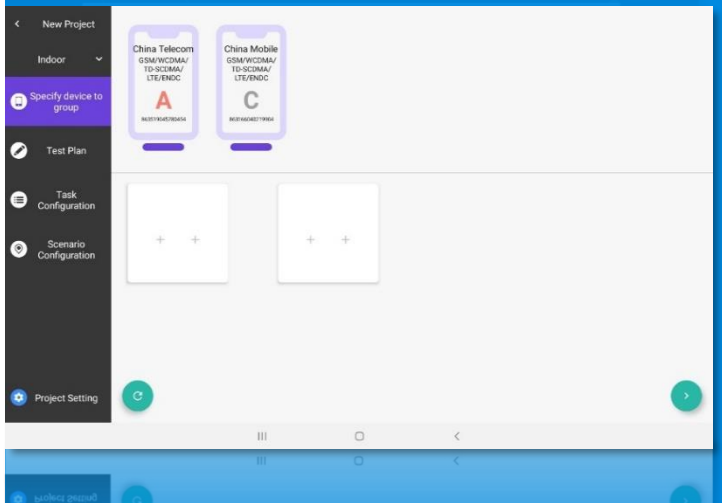
- Better visualization and user interaction
- Easier and smoother operation
- Quicker interface loading
- QR Code Connection: one code for one Pilot Walktour Pack case to avoid test interference
- Adjust WiFi channel to avoid intra-frequency interference
- Support multiple Android tablet models



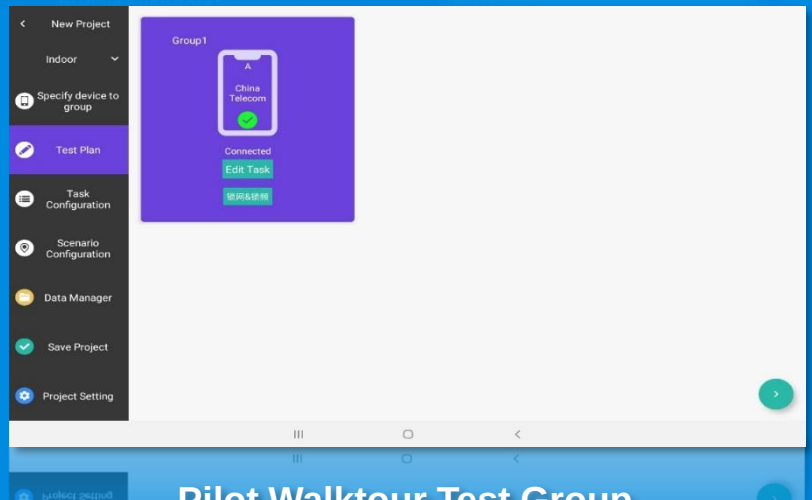
Select test scenario



Connect Pilot Walktour Pack to chassis



Connect to Pilot Walktour terminals



Pilot Walktour Test Group

High-Accuracy Auto Pinpointing

Pilot Walktour Pack supports automatic indoor positioning with a mini high-accuracy pinpointing device integrated with a gyroscope connected through Bluetooth.

Features:

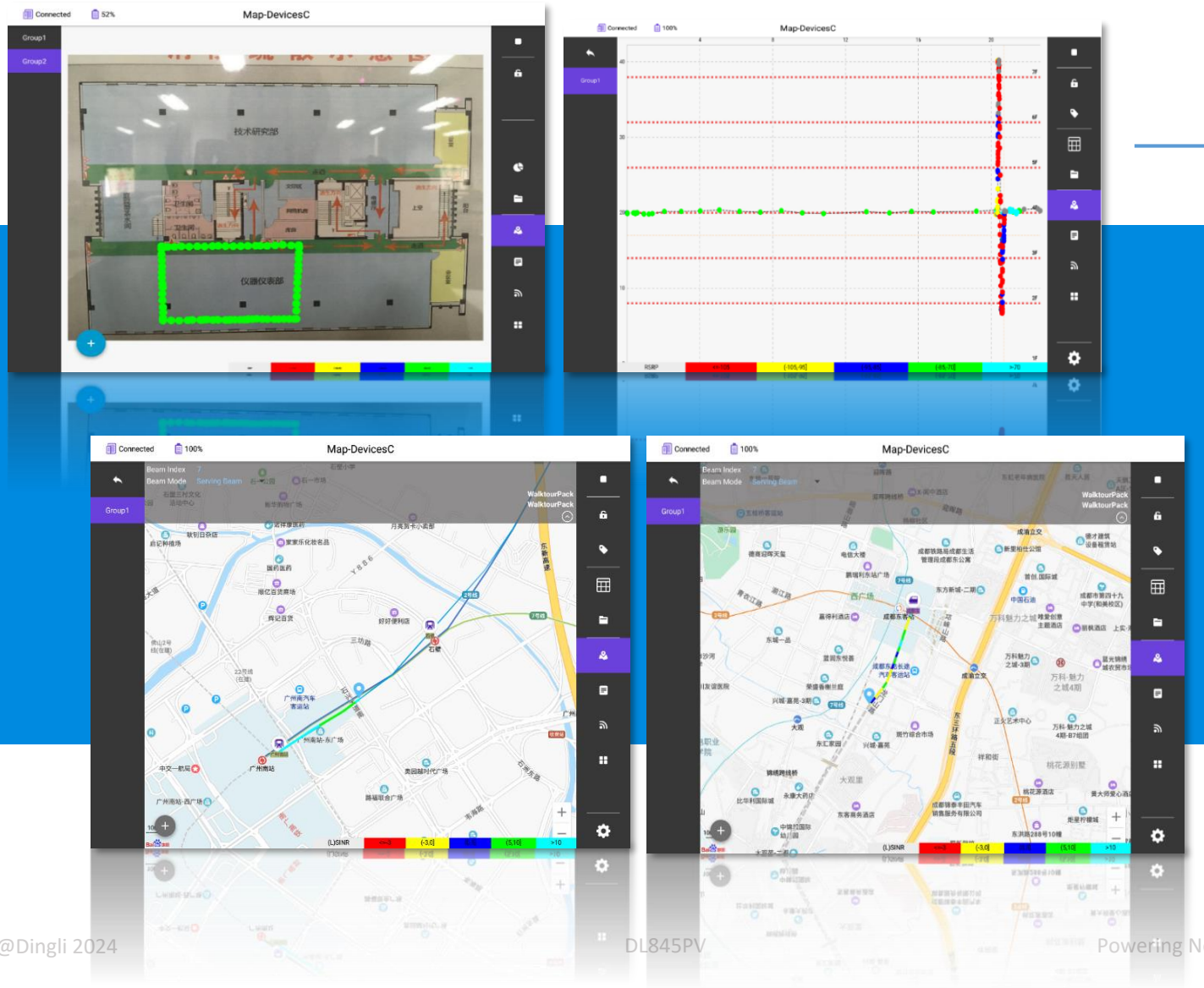
- Applicable with various indoor test scenarios, e.g. airport, malls, office buildings, elevator, staircase, high-speed rail/subway etc.
- Positional accuracy deviation less than 0.3%

Bluetooth connection

Gyroscope

Mini High-Accuracy Pinpointing Device

Use Case: Automatic Indoor &High-Speed Rail/Subway Pinpointing



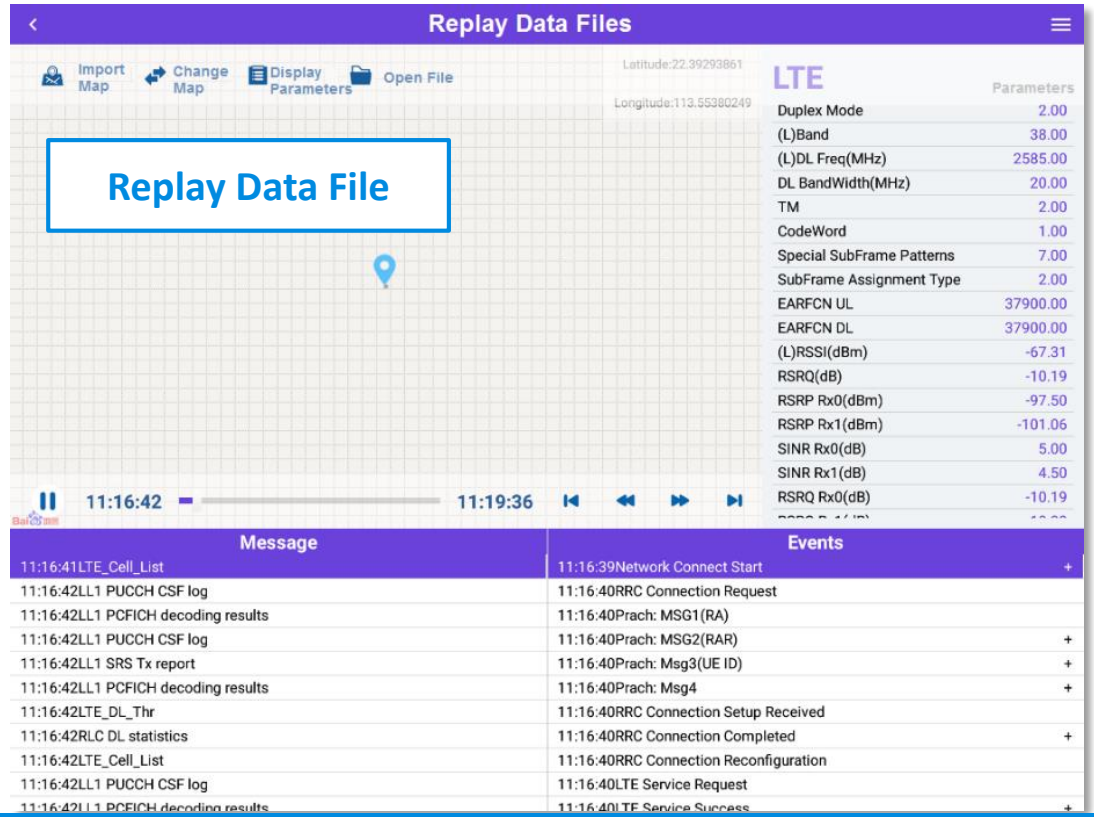
Indoor Pinpointing

DingLi Gyroscope

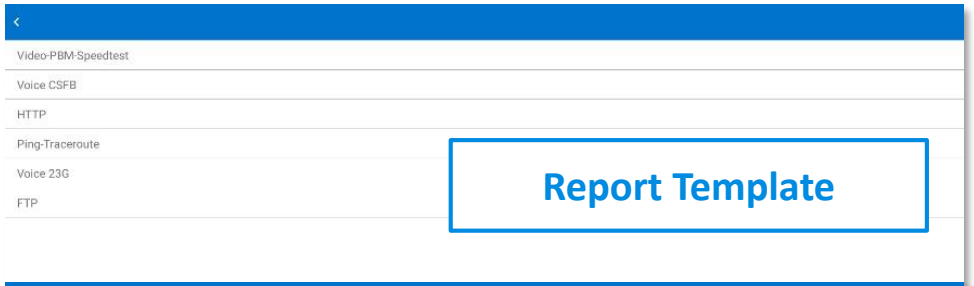
- Multiple Pinpointing Scenarios: Indoor, Lift/Escalator/Stairs/High-speed Rail/Subway
- Portable, accurate and stable operation

High-Speed Rail/Subway Pinpointing

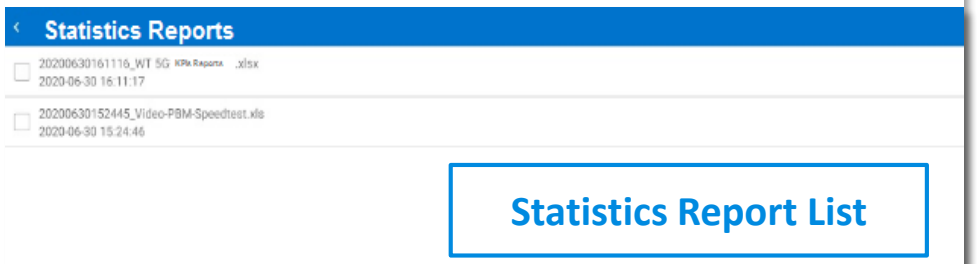
Data Replay and Statistics Report



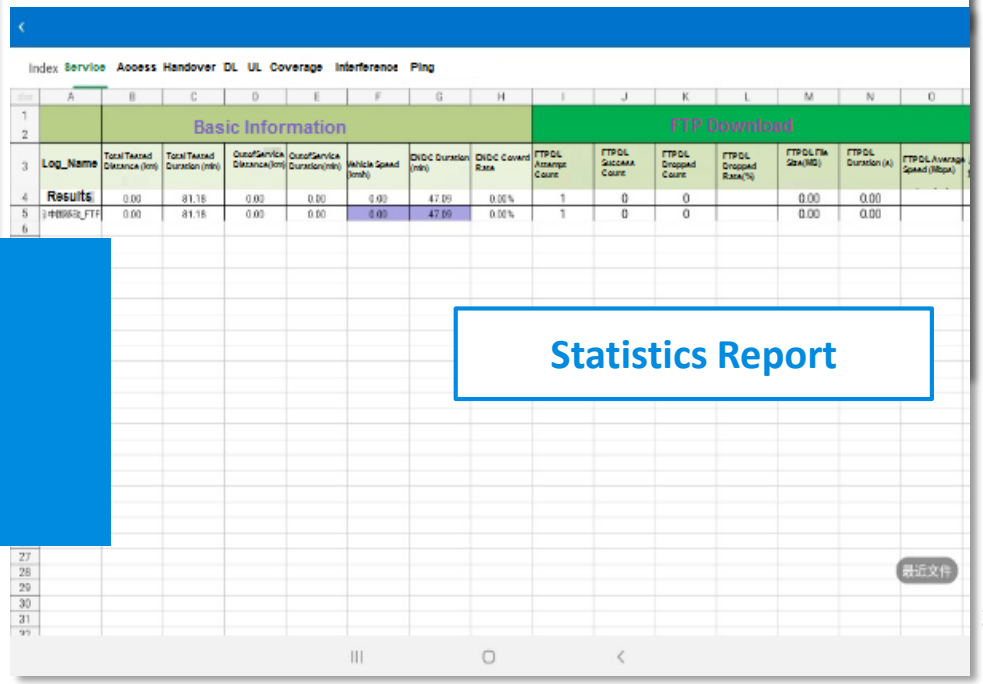
Replay Data File



Report Template



Statistics Report List



Statistics Report

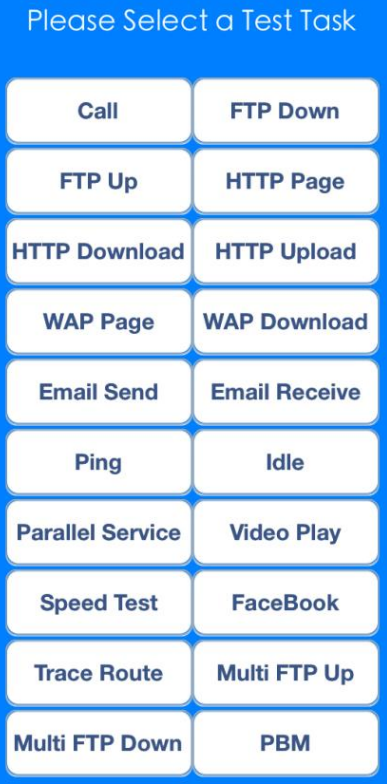
- Data Replay and Statistics generation:
- Upload logfiles from test terminals to Pilot Walktour Pack Android tablet
- Offload the data post processing and analysis from the test

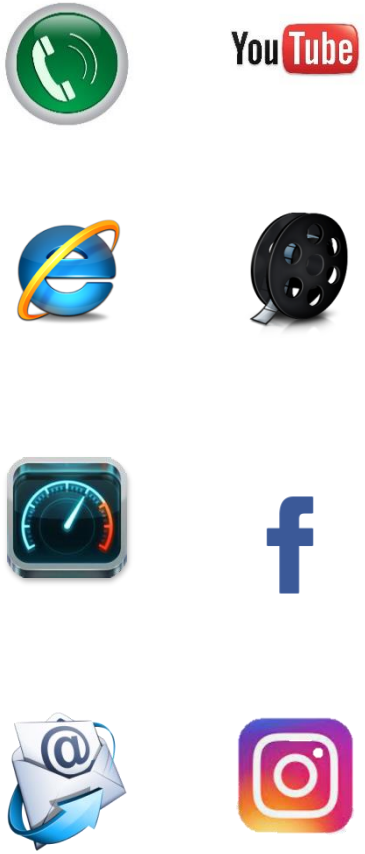
FOUR

4

Main Features

Various Services Test





Various test services are supported

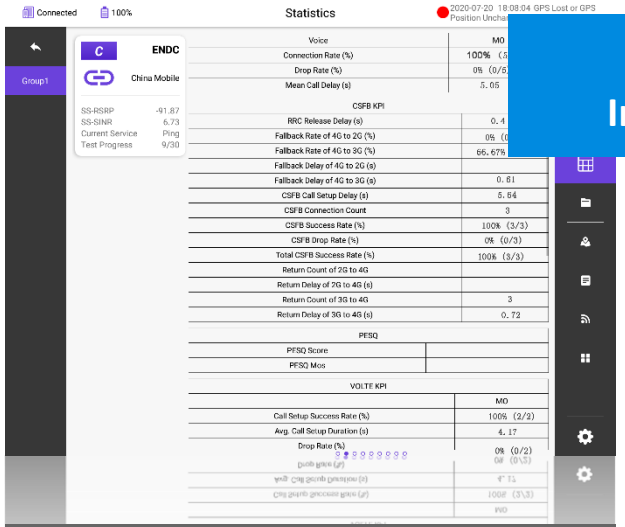
1. **Voice services**: CS Call, CSFB, VoLTE, VoNR, ViNR, EPS fallback
2. **Data services**: Ping, FTP UL/DL, HTTP Download, HTTP Page, WAP Page, WAP Download, Email Send, Email Receive, Trace route, Video Play, Facebook, Multi FTP Upload, Multi FTP Download, HTTP Upload, PBM
3. **Scanner test**:

- Supports R&S TSME6 for scanner test.
- Supported RATs include: 2G,3G,4G,NR
- Supported test services include Spectrum, cw and Pilot.

4. **Others:**

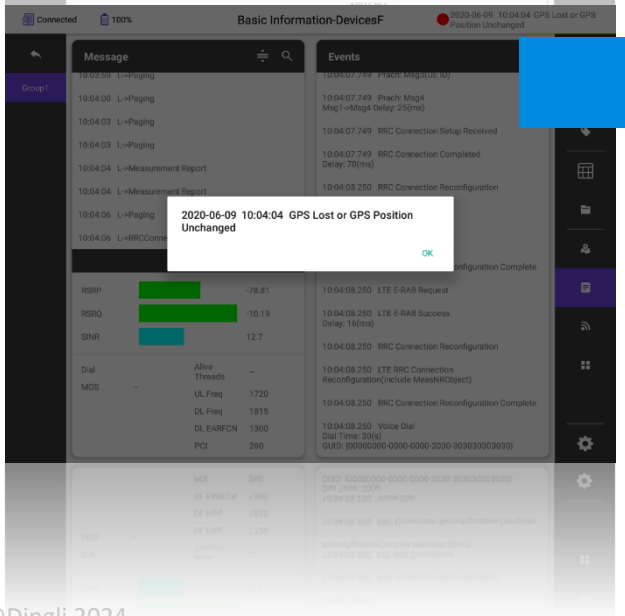
- Idle, Parallel test
- TCP/IP SNIFFER
- Loop test
- PPP disconnection modes control for data services

Monitoring and Data Management



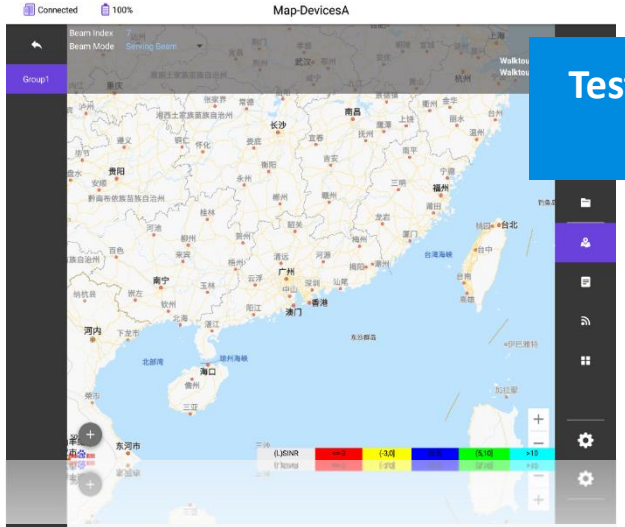
Real-time Information

Real-time parameters, events, messages of all devices can be monitored and displayed during tests.



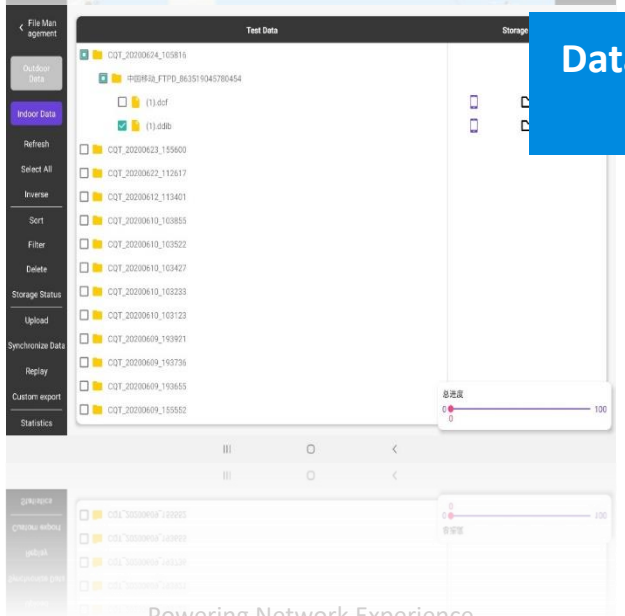
Alarm

- Supports various alarm modes: audio alarm, alarm with icons, alarm with subtitle, etc.
- Supports alarm summary



Test routes displayed on Map

- Collects GPS data and display tracks in real time
- Support pin-pointing for indoor tests
- Support automatic indoor positioning test

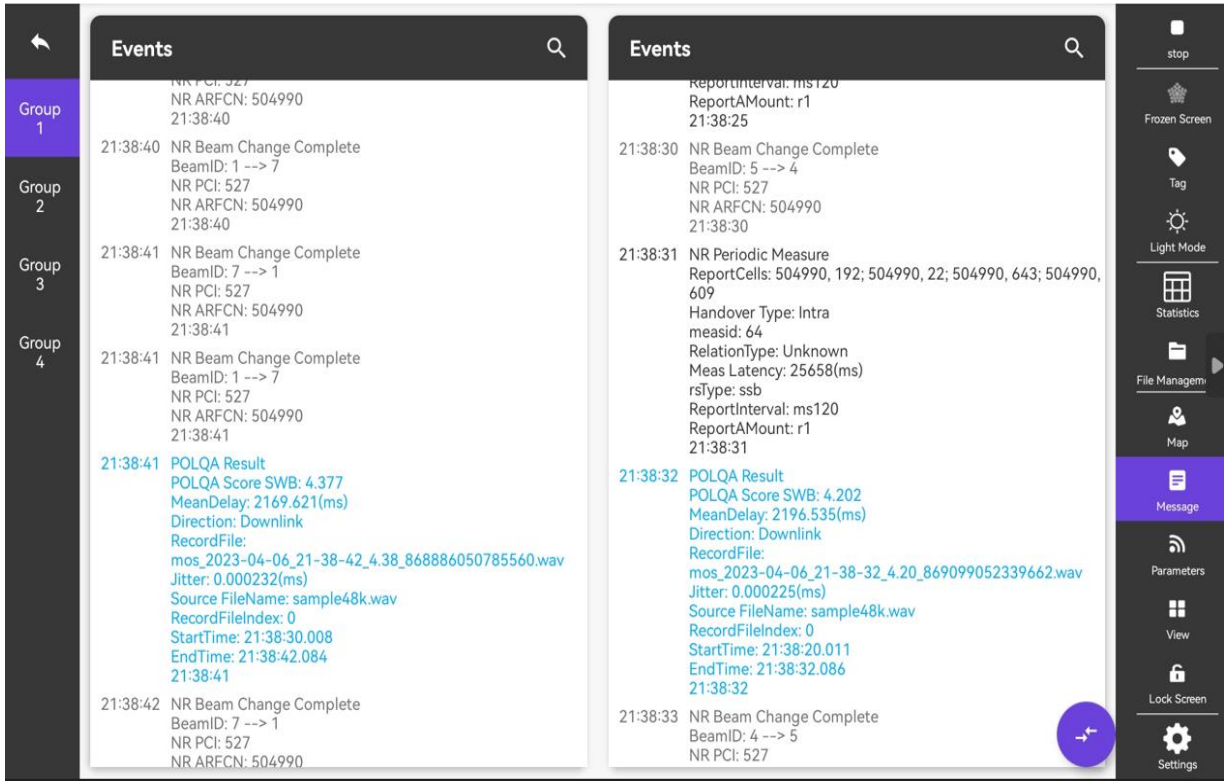


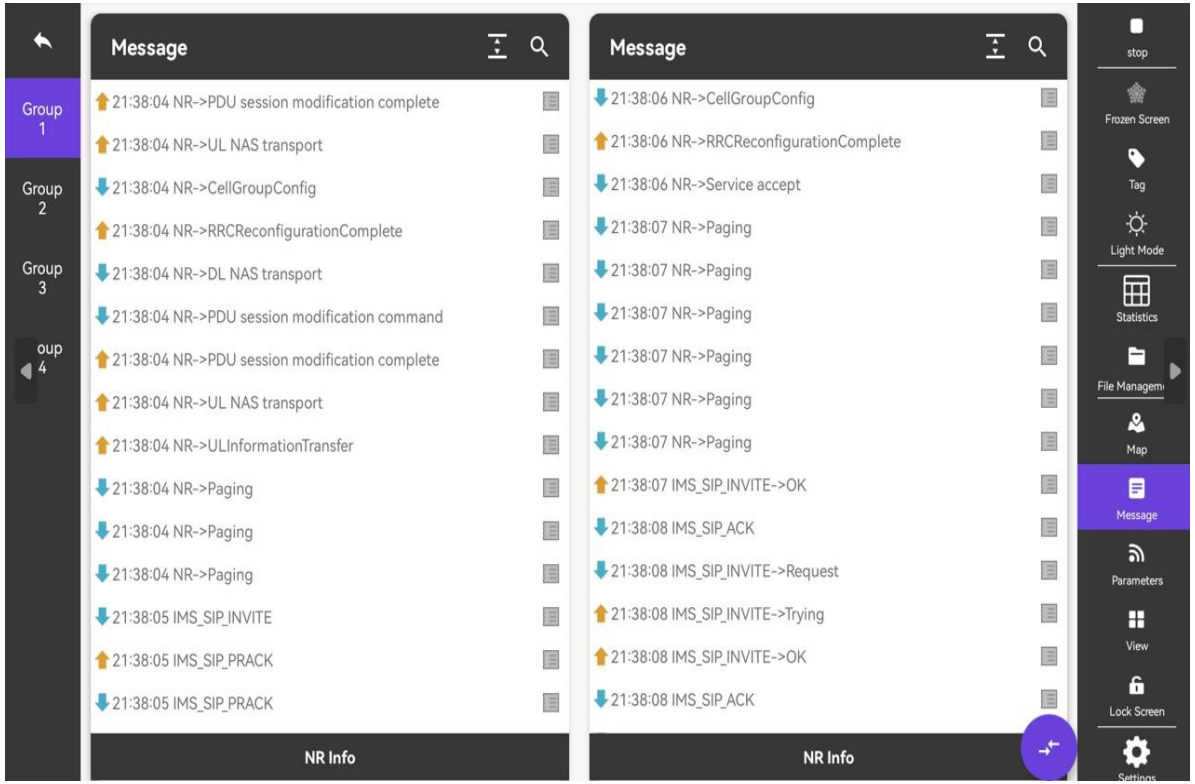
Data file uploaded to the iPad

- Data files are uploaded to the Android tablet for management after testing.

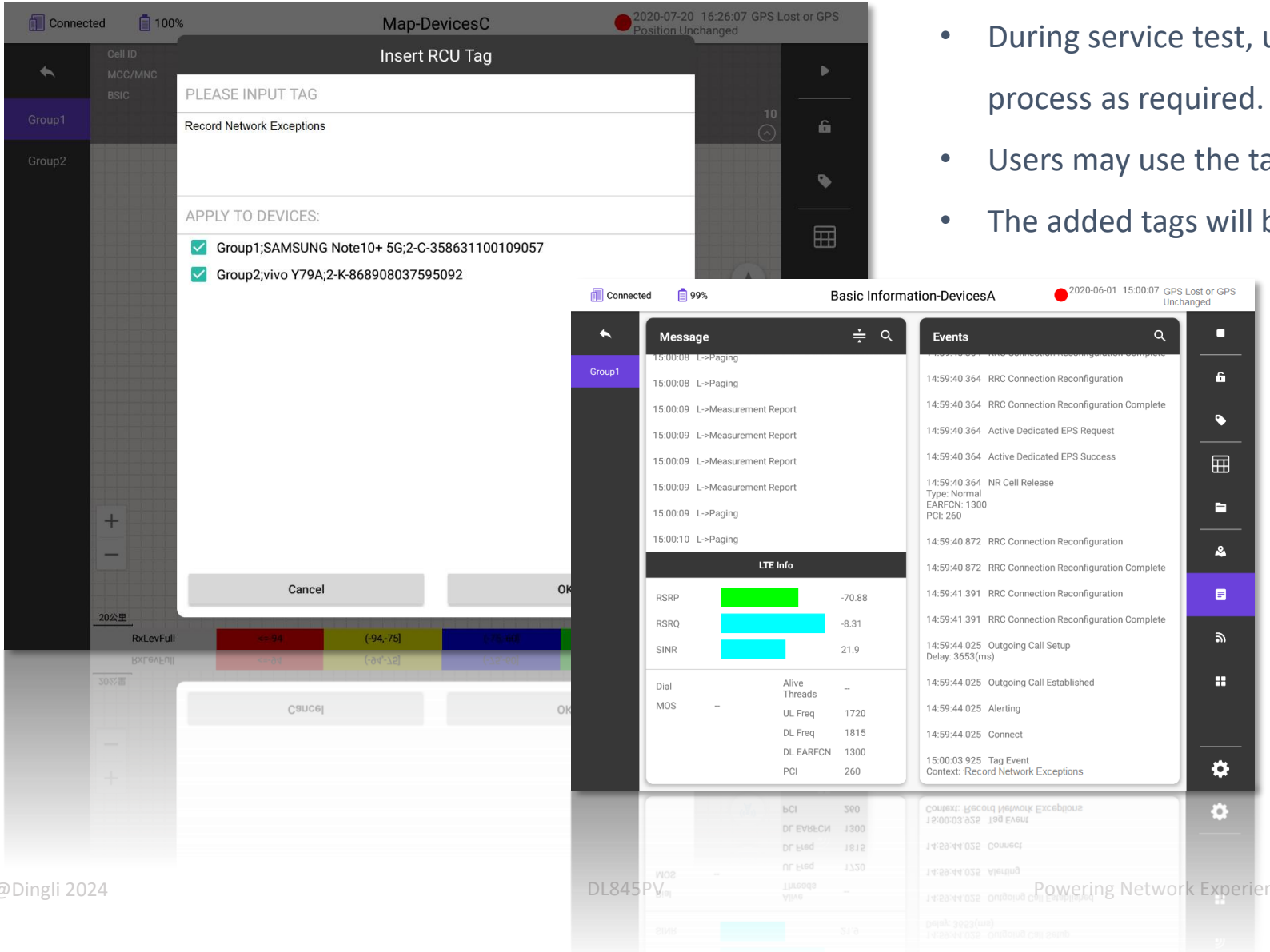
VoNR test

Messages & Events





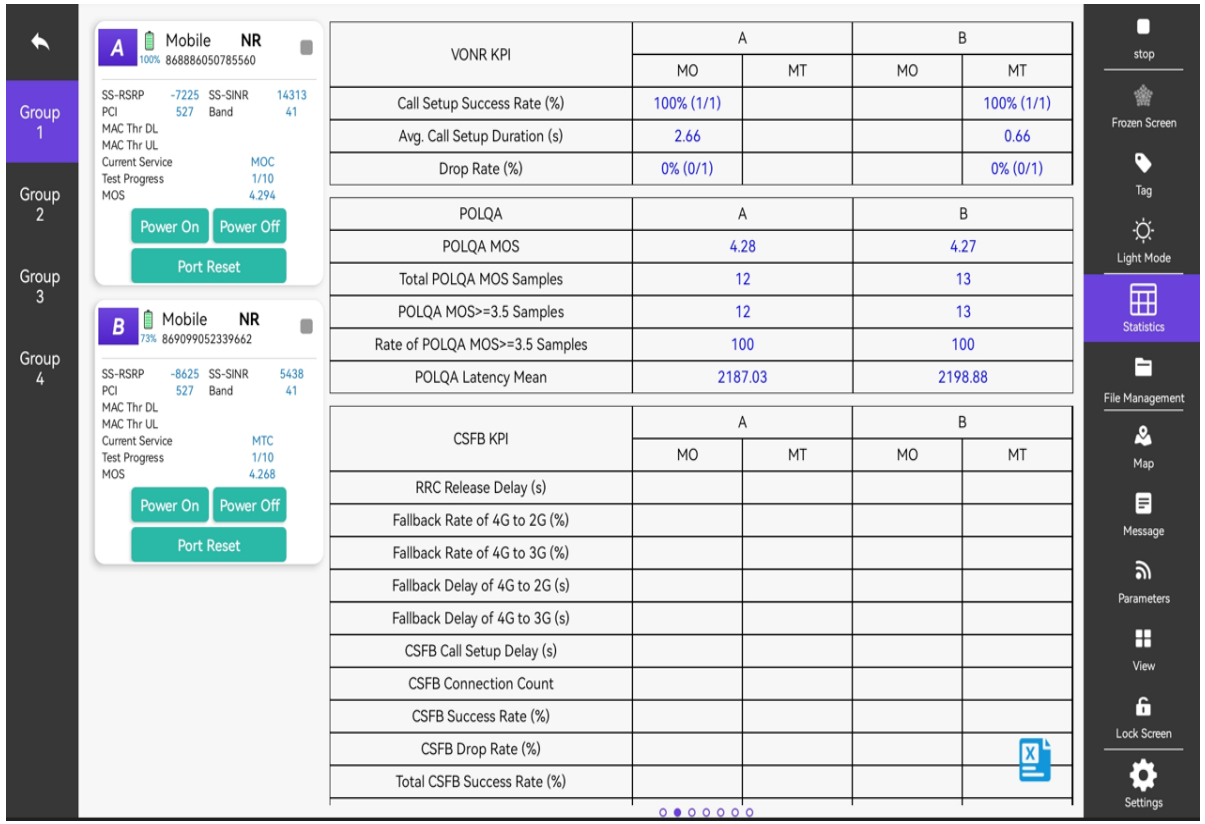
Customize Test Process Tags



- During service test, users may add tags to mark the test process as required.
- Users may use the tags to perform a search on the data file.
- The added tags will be saved to corresponding data files

Real-time Statistics

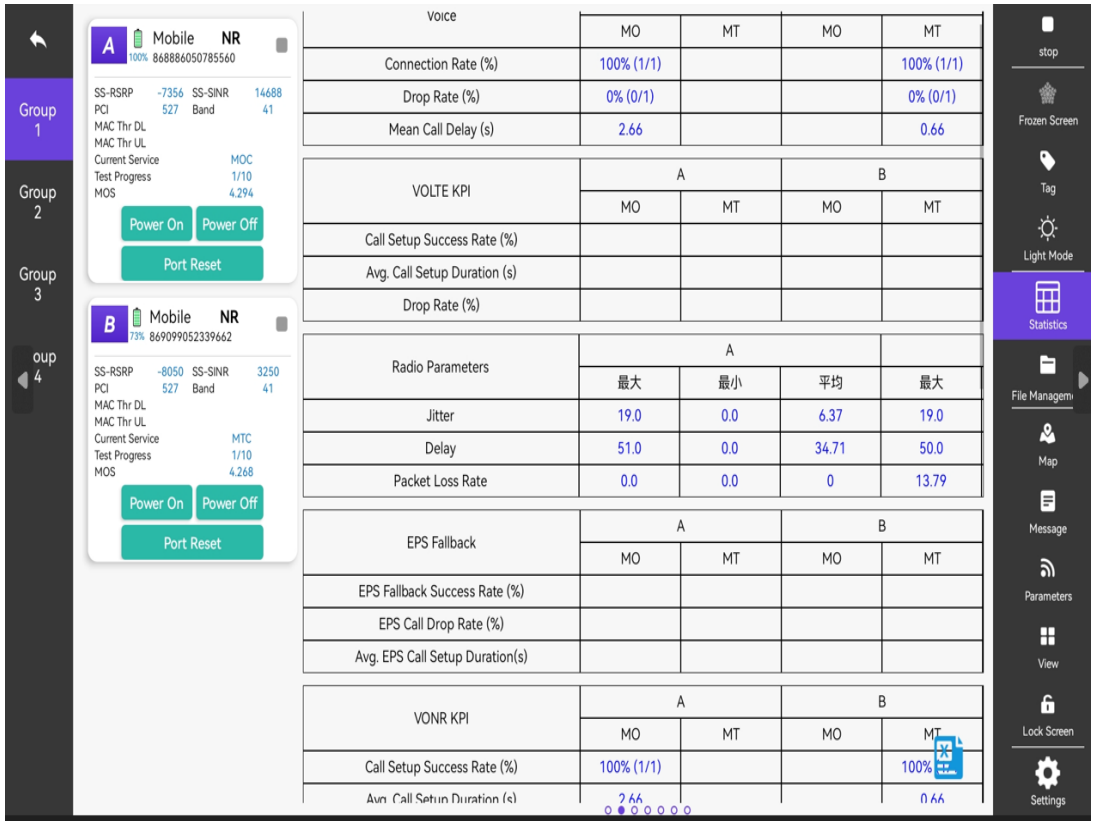
Support real-time statistics for voice, FTP and other services during testing, and present information such as the number of attempts, successes, and various scores.



VONR KPI	A		B	
	MO	MT	MO	MT
Call Setup Success Rate (%)	100% (1/1)			100% (1/1)
Avg. Call Setup Duration (s)	2.66			0.66
Drop Rate (%)	0% (0/1)			0% (0/1)

POLQA	A	B
POLQA MOS	4.28	4.27
Total POLQA MOS Samples	12	13
POLQA MOS>=3.5 Samples	12	13
Rate of POLQA MOS>=3.5 Samples	100	100
POLQA Latency Mean	2187.03	2198.88

CSFB KPI	A		B	
	MO	MT	MO	MT
RRC Release Delay (s)				
Fallback Rate of 4G to 2G (%)				
Fallback Rate of 4G to 3G (%)				
Fallback Delay of 4G to 2G (s)				
Fallback Delay of 4G to 3G (s)				
CSFB Call Setup Delay (s)				
CSFB Connection Count				
CSFB Success Rate (%)				
CSFB Drop Rate (%)				
Total CSFB Success Rate (%)				



Voice	MO	MT	MO	MT
Connection Rate (%)	100% (1/1)			100% (1/1)
Drop Rate (%)	0% (0/1)			0% (0/1)
Mean Call Delay (s)	2.66			0.66

VOLTE KPI	A		B	
	MO	MT	MO	MT
Call Setup Success Rate (%)				
Avg. Call Setup Duration (s)				
Drop Rate (%)				

Radio Parameters	A			
	最大	最小	平均	最大
Jitter	19.0	0.0	6.37	19.0
Delay	51.0	0.0	34.71	50.0
Packet Loss Rate	0.0	0.0	0	13.79

EPS Fallback	A		B	
	MO	MT	MO	MT
EPS Fallback Success Rate (%)				
EPS Call Drop Rate (%)				
Avg. EPS Call Setup Duration(s)				

VONR KPI	A		B	
	MO	MT	MO	MT
Call Setup Success Rate (%)	100% (1/1)			100%
Avg. Call Setup Duration (s)	2.66			0.66

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Supported Terminals

Compatibility

Supported Android-based terminals:

Device	Operating System	Model
Controller	Android Tablet	Samsung S Series HUAWEI Tab Or an Android tablet the same size as the screen
Test Phones	HiSilicon	HUAWEI P40 HUAWEI P40 pro HUAWEI MATE40 HUAWEI MATE40E pro
	Qualcomm	Samsung Galaxy S24/S23/S22/S21 Xiaomi 14/14pro Xiaomi 13/13 Pro Xiaomi 12S

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Conclusion

Benefits

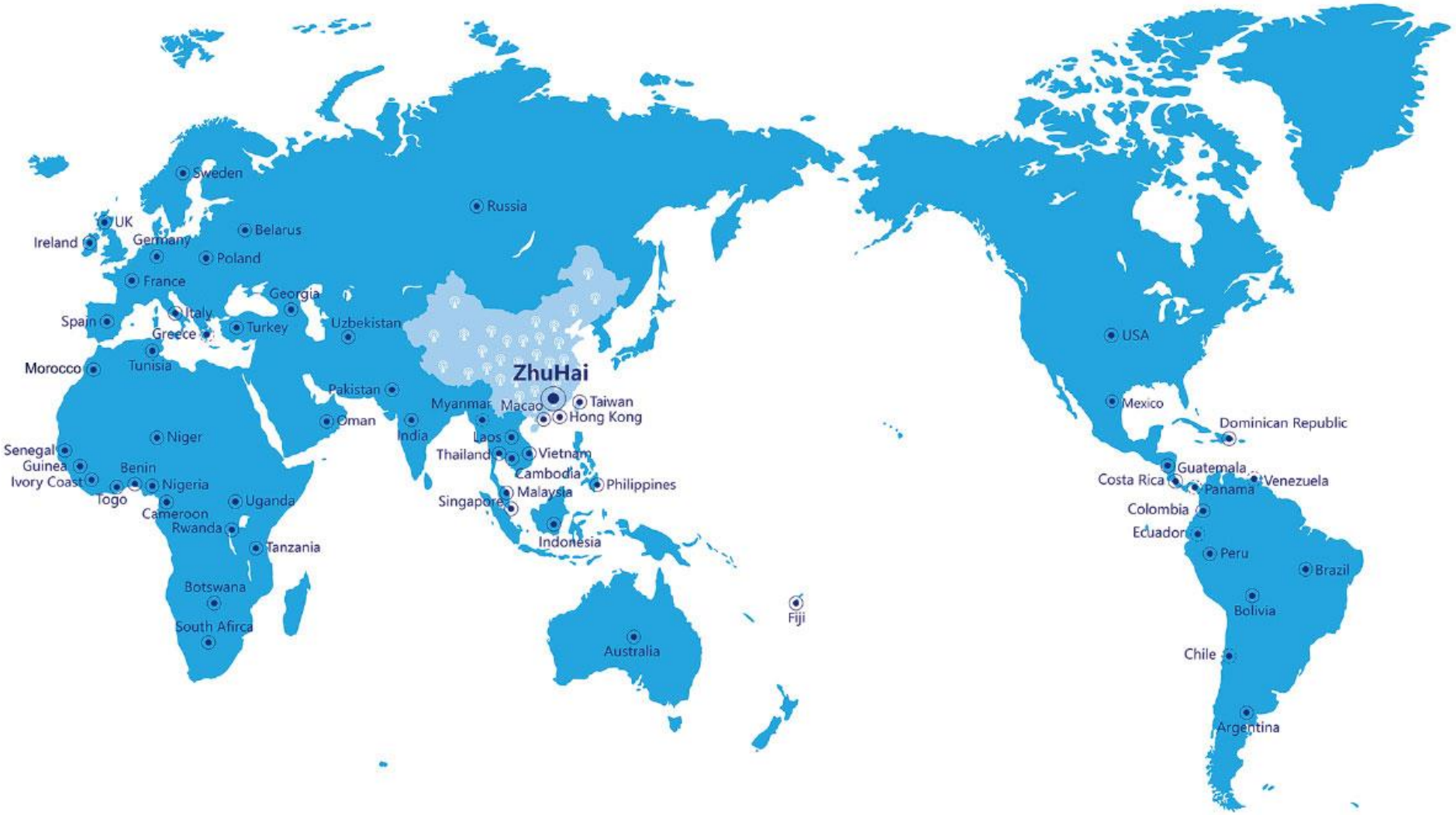
Product Advantages

- Portable, managed by one engineer for benchmarking tests
- Small and easy to operate
- Built-in battery for continuous testing
- Built-in high-performance GPS

Business Values

- Provide comprehensive and authentic user perception.
- Fast and efficient network measurement
- Significant reduction in labor costs
- Stable operation and high efficiency

Customer Base



Thank you for your support!

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