

Pilot Walktour Pack4.8

Powering Network Experience

DingLi Corporation Limited

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



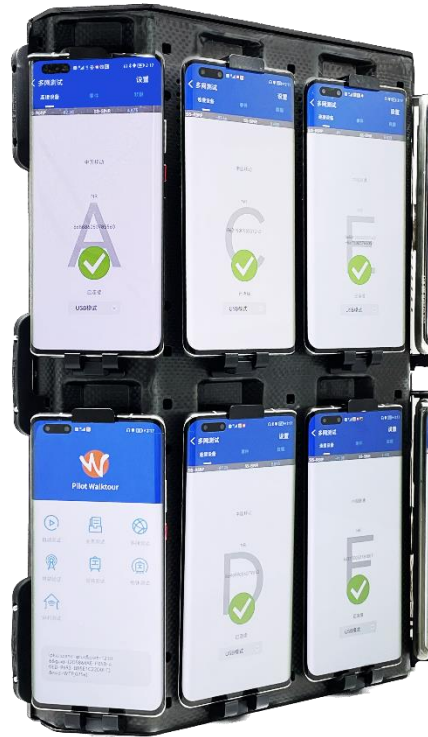
Pilot Walktour Pack



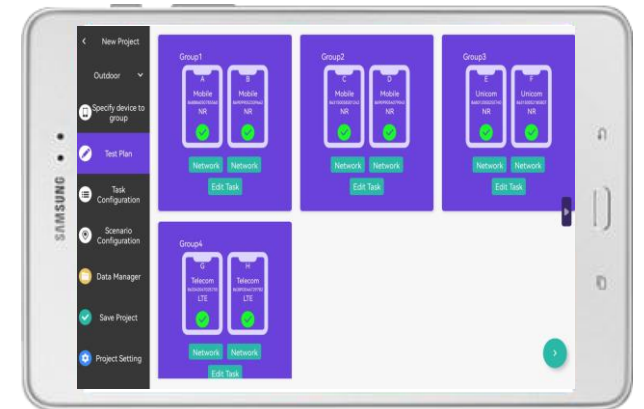
Backpack 1.0



Backpack 2.0



Controlling Chassis



Tablet
Controller



Powerful, portable, simple operation for benchmarking testing

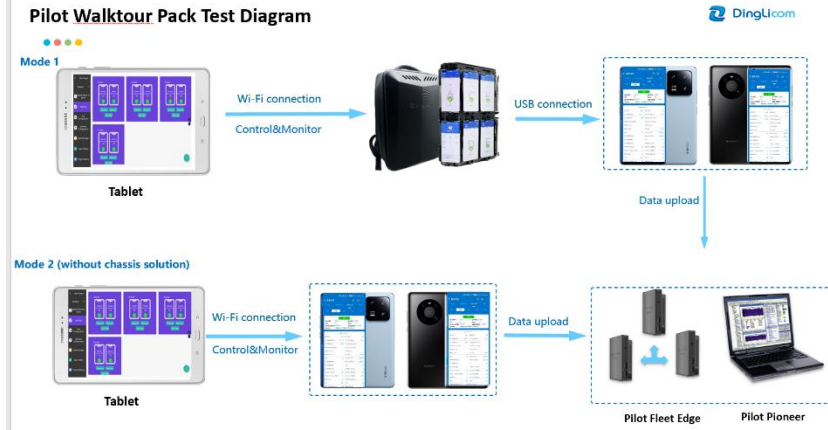
Traditional Test Drivel



- 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

PILOT WALKTOUR PACK

2

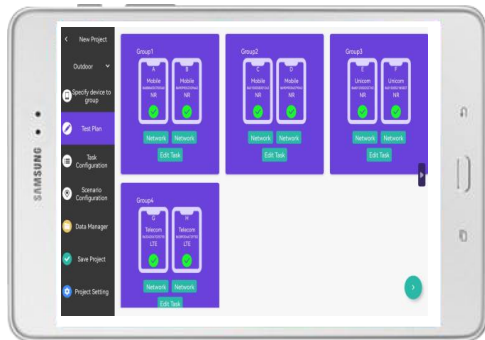
T
W
O

Product Details

Pilot Walktour Pack Test Diagram



Mode 1

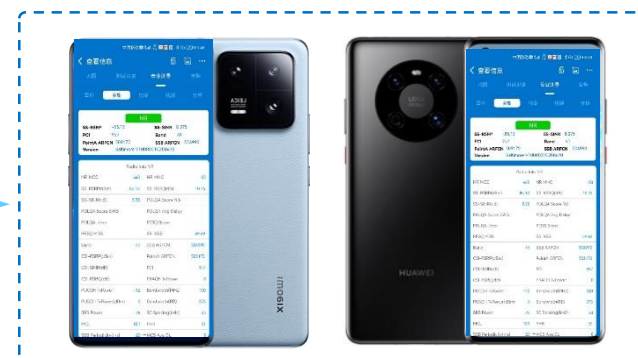


Tablet

Wi-Fi connection
Control&Monitor

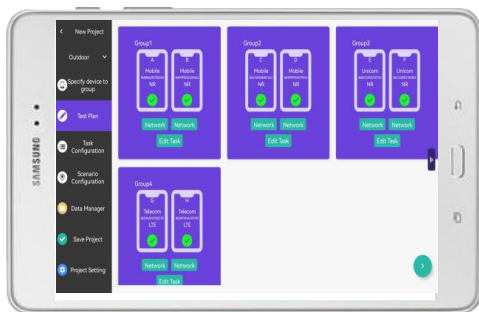


USB connection



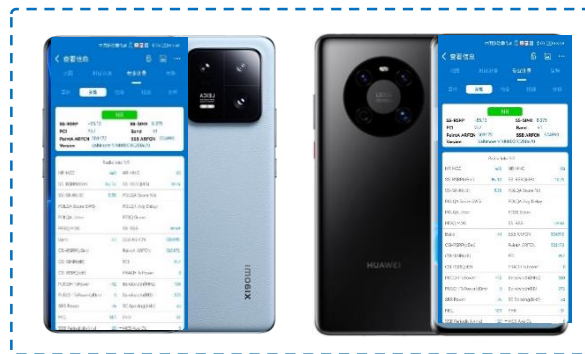
Data upload

Mode 2 (without chassis solution)

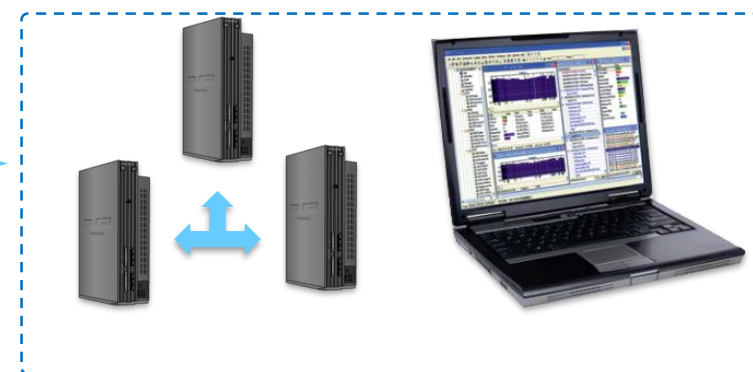


Tablet

Wi-Fi connection
Control&Monitor



Data upload



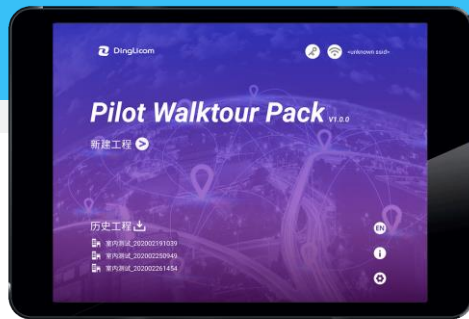
Pilot Fleet Edge

Pilot Pioneer



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.







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

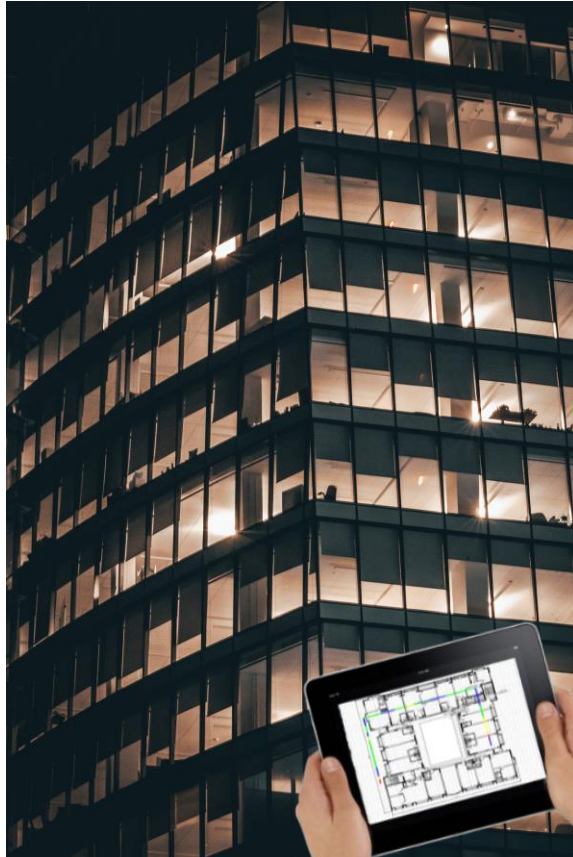


Application Scenarios (2)



Indoor test:

hotel
buildings,
Offices, etc.



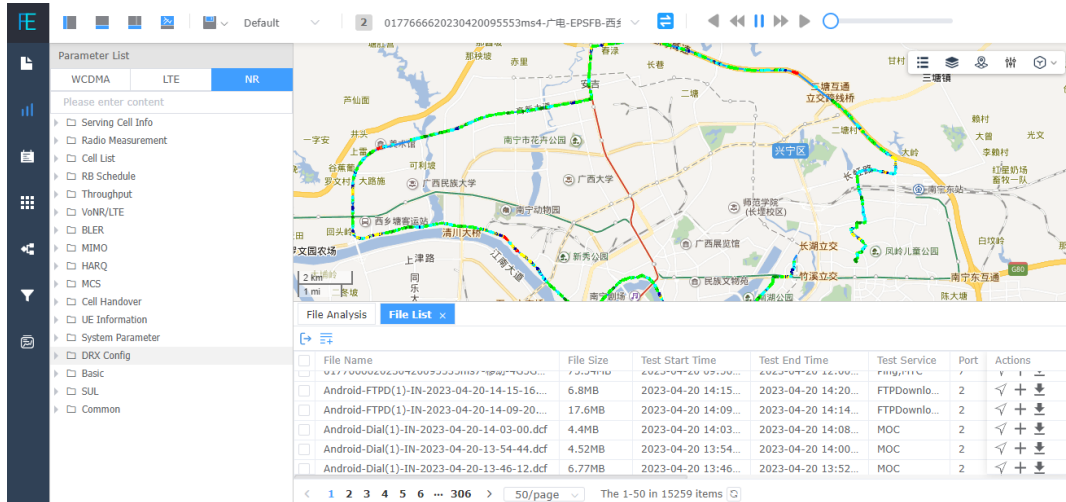
Outdoor test:

road, high-speed rail,
schools, scenery spots, etc.



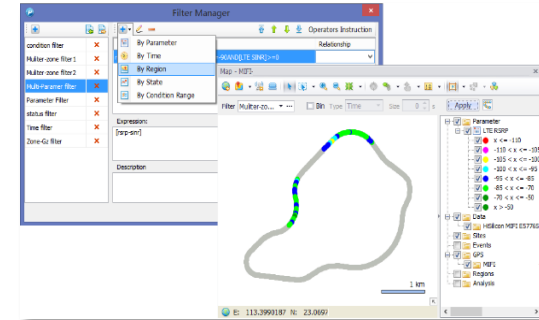


Upload data files to Pilot Fleet Edge for centralized management and specialized analysis



- 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

T
H
R
E
E

New Features



Battery Life Indicators

- battery life of backpack controller
- Low battery alert

Cell phone Indicators

- battery life and temperature indicator
- CPU temperature

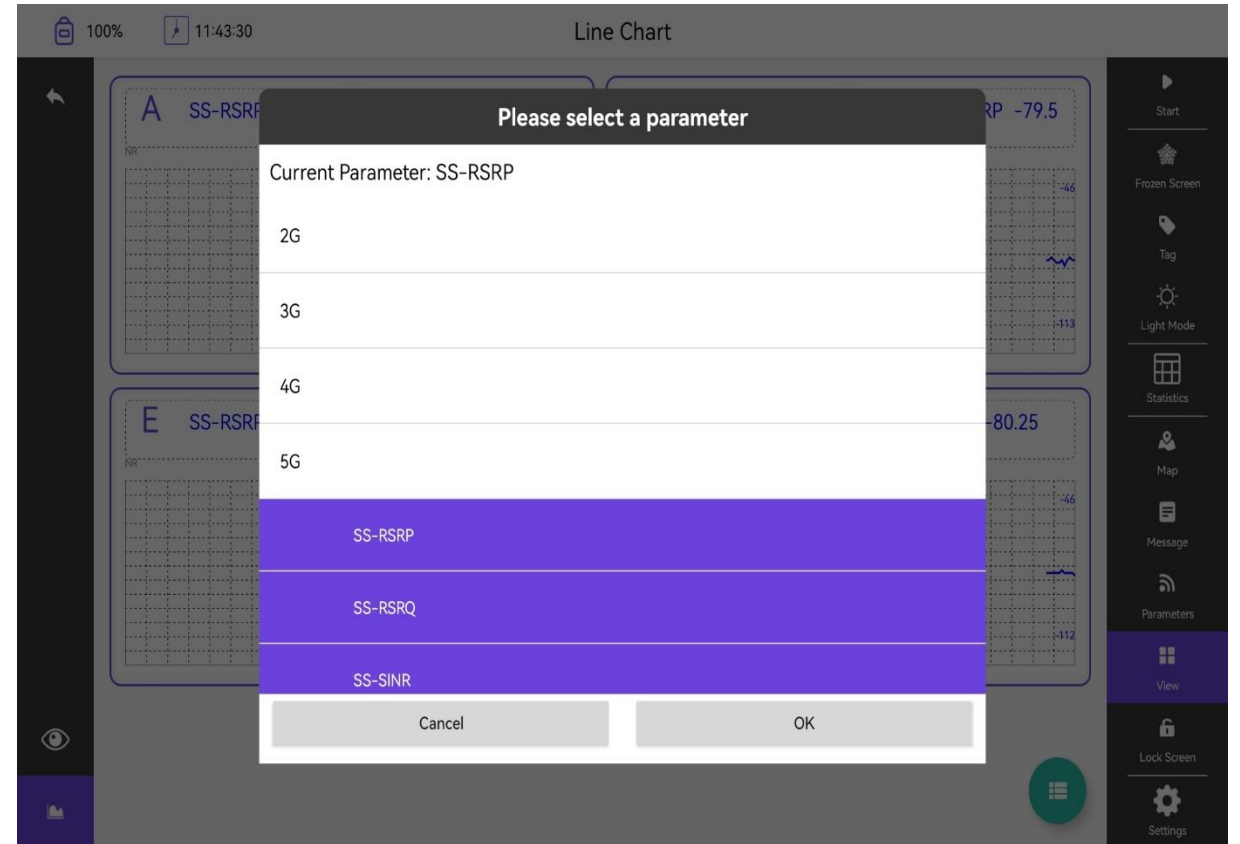
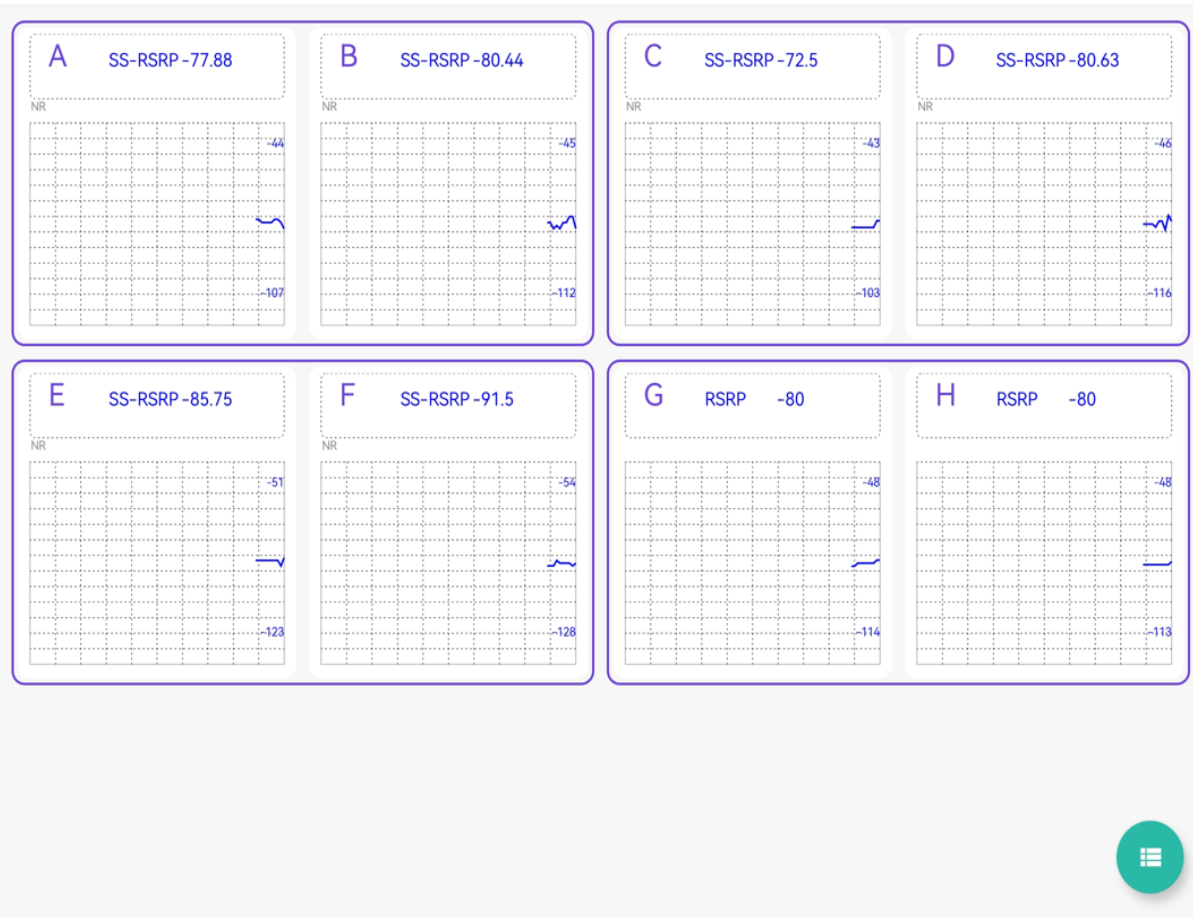
The screenshot shows a dashboard with a top status bar displaying 95% battery and the time 20:56:42. Below the status bar, there are several indicator cards for different devices, labeled B through H. Each card shows the device name, network type, and various performance metrics. A red box highlights the battery indicator for device B, which shows 90% battery level. The interface also includes a sidebar with navigation icons for Start, Frozen Screen, Tag, Light Mode, Statistics, Map, Message, Parameters, View, Lock Screen, and Settings.

The screenshot shows a dashboard with a top status bar displaying 95% battery and the time 20:56:39. Below the status bar, there is a large table titled "Device Status" and "CPU Load". The table has columns A through H and rows for various indicators. A sidebar on the right contains navigation icons for Start, Frozen Screen, Tag, Light Mode, Statistics, Map, Message, Parameters, View, Lock Screen, and Settings.

	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°C	29.0°C	29.0°C	29.0°C	30.0°C	28.0°C	29.0°C	29.0°C
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°C	31.551°C	32.077°C	31.242°C	33.888°C	30.794°C	31.2°C	31.84°C
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



Self-defined parameters





Added Backpack without Controlling Chassis Solution

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

21:18:49 Thumbnails

Thumbnail	Network	SS-RSRP	SS-SINR	PCI	Band	Control
A	Mobile NR	-6894	14063	527	41	Power On, Power Off, Port Reset
B	Mobile NR	-7888	7625	527	41	Power On, Power Off, Port Reset
C	Mobile NR	-7375	10750	527	41	Power On, Power Off, Port Reset
D	Mobile NR	-7638	8125	527	41	Power On, Power Off, Port Reset
E	Unicom NR	-8588	5375	107	78	Power On, Power Off, Port Reset
F	Unicom NR	-9075	9000	107	78	Power On, Power Off, Port Reset
G	Telecom LTE	-8038	13000	330	3	Power On, Power Off, Port Reset
H	Telecom LTE	-8000	13000	330	3	Power On, Power Off, Port Reset

Right sidebar menu: Start, Frozen Screen, Tag, Light Mode, Statistics, File Management, Map, Message, Parameters, View, Lock Screen, Settings

9:22 PM < Multi-Test SETTINGS

Connect Event Data

RSCP -75.671 EcIo -5.176

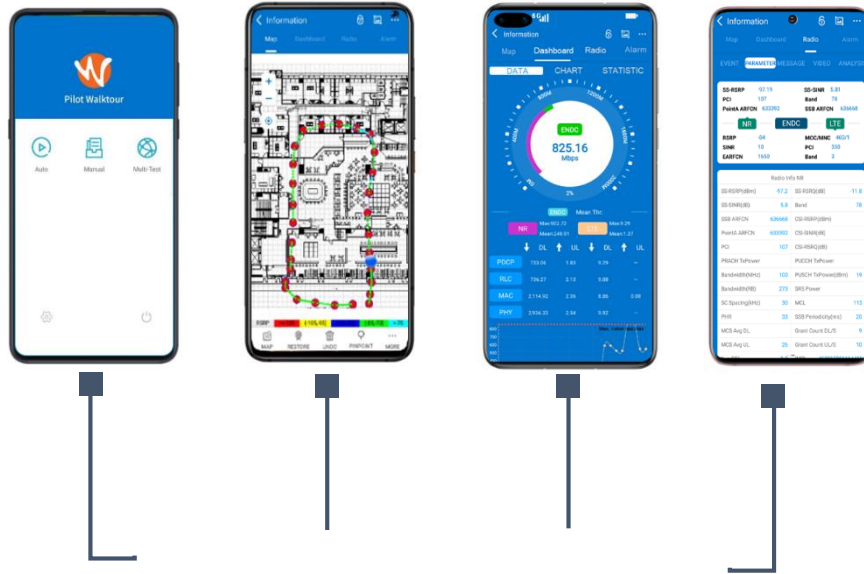
WCDMA

861065050186852

Connected

WIFI Deric... ▾

Specification



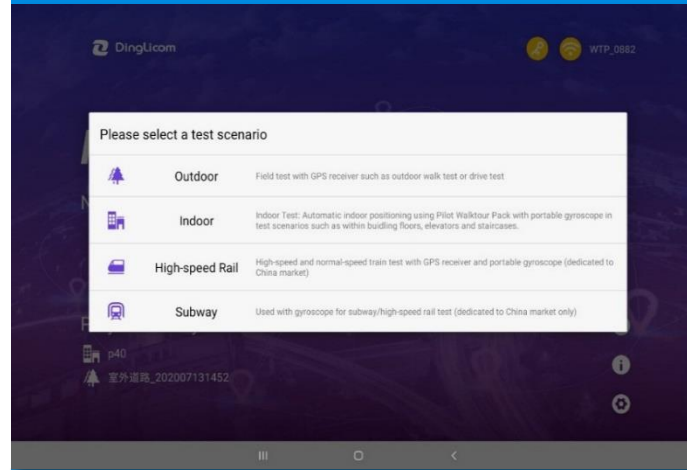
DL845PV

- 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°C to +40°C
- Storage Temperature: 45°C to +85°C
- Humidity: 93%RH, +40°C

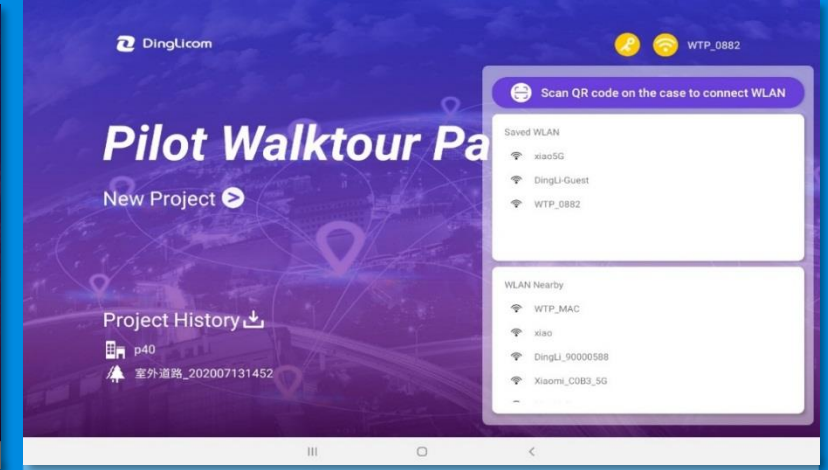
New UI Design and Connection Mode



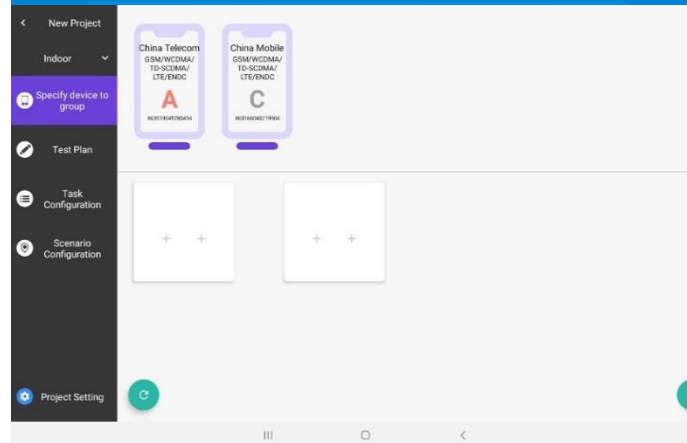
- Better visualization and user interaction
- Easier and smoother operation
- Quicker interface loading
- QR Code Connection: one code for one Pilot Walktour Pack case to avoid test interference
- Adjust WiFi channel to avoid intra-frequency interference
- Support multiple Android tablet models



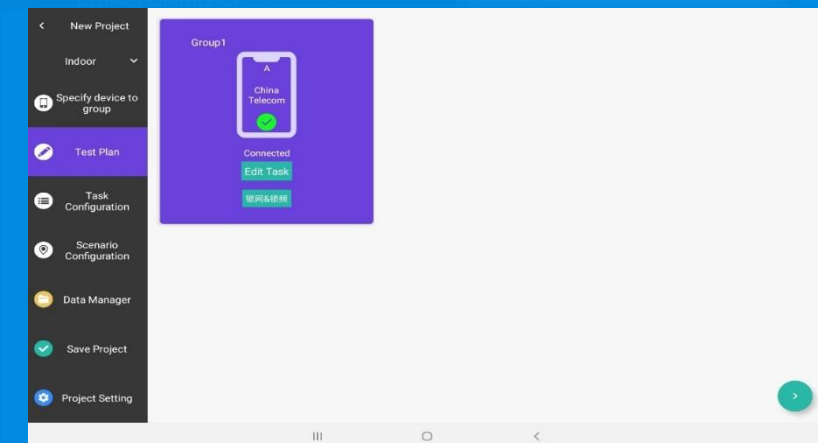
Select test scenario



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%

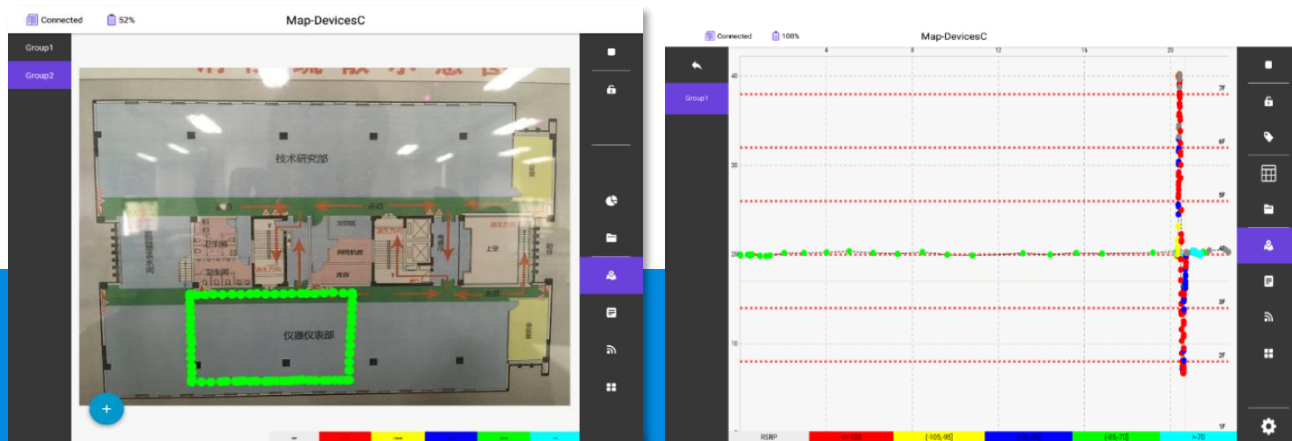


Bluetooth connection



Gyroscope Mini High-Accuracy Pinpointing Device

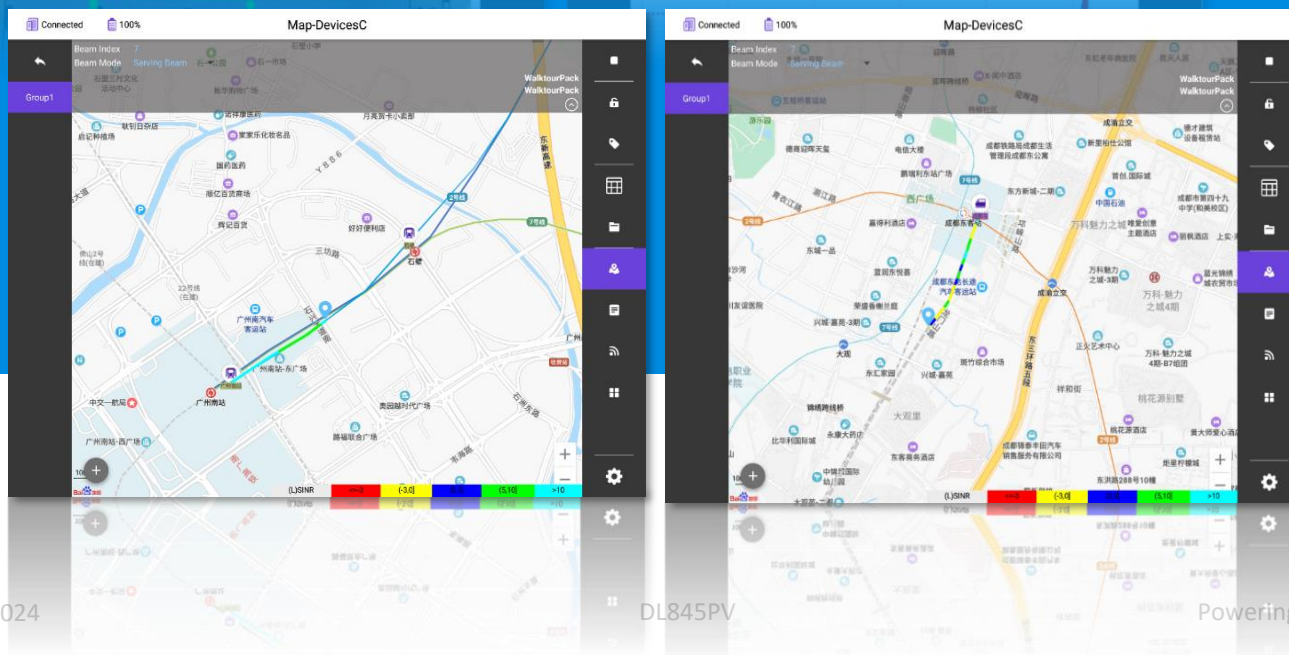




Indoor Pinpointing

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 Files

Import Map | Change Map | Display Parameters | Open File

Latitude: 22.39293861
Longitude: 113.55380249

LTE Parameters

- Duplex Mode: 2.00
- (L)Band: 38.00
- (L)DL Freq(MHz): 2585.00
- DL BandWidth(MHz): 20.00
- TM: 2.00
- CodeWord: 1.00
- Special SubFrame Patterns: 7.00
- SubFrame Assignment Type: 2.00
- EARFCN UL: 37900.00
- EARFCN DL: 37900.00
- (L)RSSI(dBm): -67.31
- RSRQ(dB): -10.19
- RSRP Rx0(dBm): -97.50
- RSRP Rx1(dBm): -101.06
- SINR Rx0(dB): 5.00
- SINR Rx1(dB): 4.50
- RSRQ Rx0(dB): -10.19
- RSRQ Rx1(dB): -10.19

11:16:42 | 11:19:36

Message	Events
11:16:41LTE_Cell_List	11:16:39Network Connect Start
11:16:42LL1 PUCCH CSF log	11:16:40RRC Connection Request
11:16:42LL1 PCFICH decoding results	11:16:40Prach: MSG1(RA)
11:16:42LL1 PUCCH CSF log	11:16:40Prach: MSG2(RAR)
11:16:42LL1 SRS Tx report	11:16:40Prach: Msg3(UE ID)
11:16:42LL1 PCFICH decoding results	11:16:40Prach: Msg4
11:16:42LTE_DL_Thr	11:16:40RRC Connection Setup Received
11:16:42RLC DL statistics	11:16:40RRC Connection Completed
11:16:42LTE_Cell_List	11:16:40RRC Connection Reconfiguration
11:16:42LL1 PUCCH CSF log	11:16:40LTE Service Request
11:16:42LL1 PCFICH decoding results	11:16:40LTE Service Success

Replay Data File

Video-PBM-Speedtest

Voice CSFB

HTTP

Ping-Traceroute

Voice 23G

FTP

Report Template

Report Template

Statistics Reports

- 20200630161116_WT 5G KPI Reports .xlsx
2020-06-30 16:11:17
- 20200630152445_Video-PBM-Speedtest.xls
2020-06-30 15:24:46

Statistics Report List

Statistics Report List

Index Service Access Handover DL UL Coverage Interference Ping

Basic Information							FTP Download							
Log_Name	Total Tx Power (W)	Total Tx Power (dBm)	Out of Service (Count)	Out of Service (Rate)	Vehicle Speed (km/h)	DL/DL Duration (min)	DL/DL Coverage Rate	FTP DL Attempt Count	FTP DL Success Count	FTP DL Drop Count	FTP DL Drop Rate(%)	FTP DL File Size(MB)	FTP DL Duration (s)	FTP DL Average Speed (Mbps)
Results	0.00	81.18	0.00	0.00	0.00	47.09	0.00%	1	0	0		0.00	0.00	
3#BBK32_FTF	0.00	81.18	0.00	0.00	0.00	47.09	0.00%	1	0	0		0.00	0.00	

最近文件

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

PILOT WALKTOUR PACK

4

F
O
U
R

Main Features



Please Select a Test Task

Call	FTP Down
FTP Up	HTTP Page
HTTP Download	HTTP Upload
WAP Page	WAP Download
Email Send	Email Receive
Ping	Idle
Parallel Service	Video Play
Speed Test	FaceBook
Trace Route	Multi FTP Up
Multi FTP Down	PBM

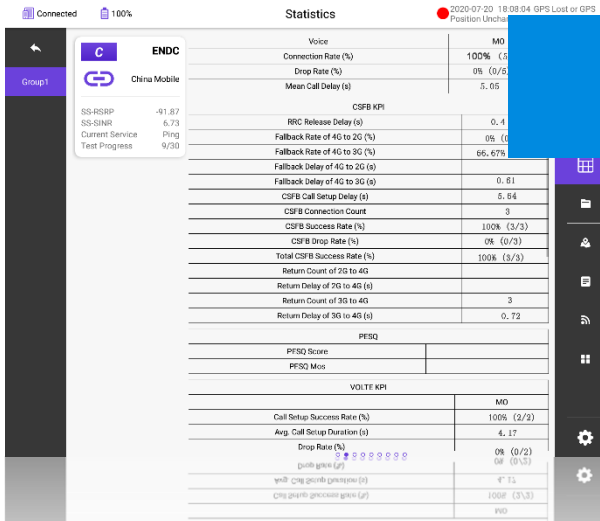


YouTube



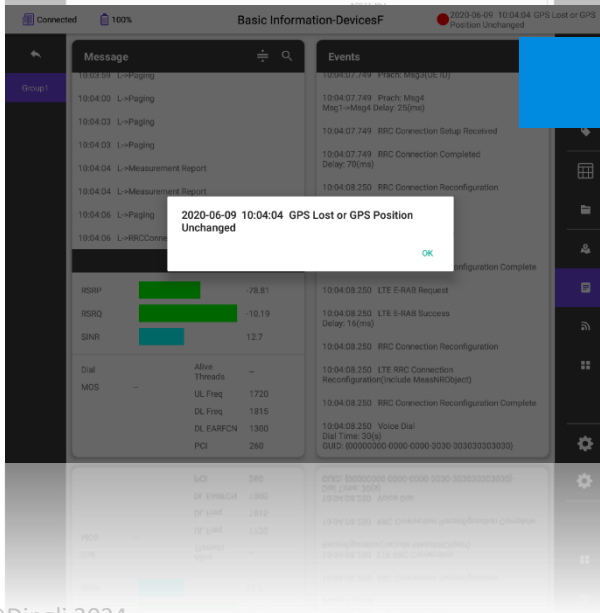
Various test services are supported

- 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 PCTEL IBflex for scanner test.
 - Supported RATs include: 2G,3G,4G,NR
 - Supported test services include CW and Pilot.
- 4. Others:**
 - Idle, Parallel test
 - TCP/IP SNIFFER
 - Loop test
 - PPP disconnection modes control for data services



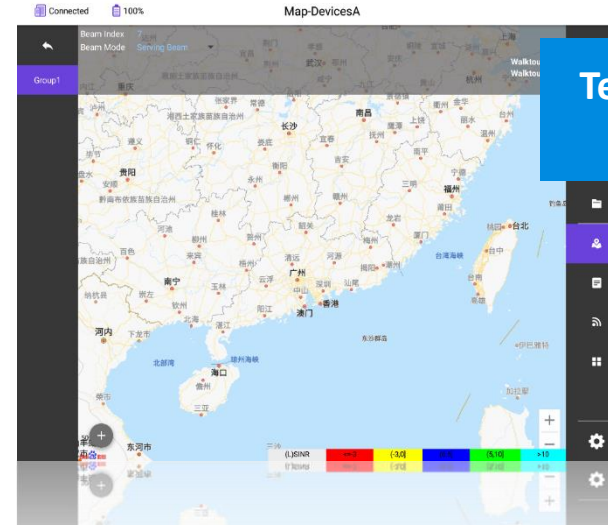
Real-time Information

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



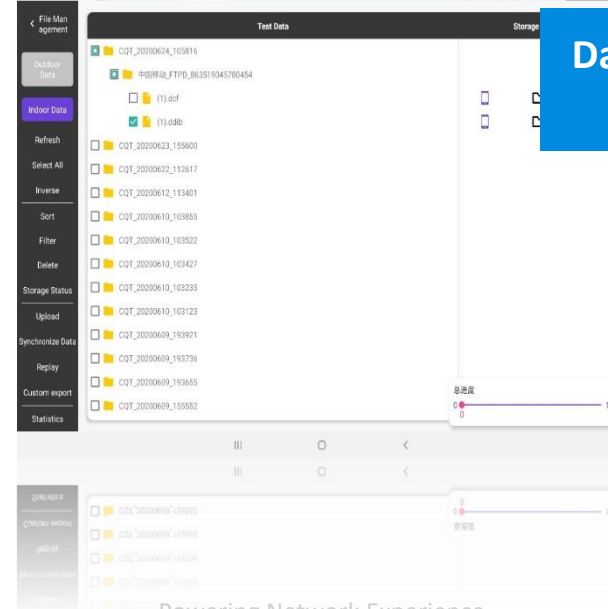
Alarm

- 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.



Messages & Events

Group 1

Group 2

Group 3

Group 4

Events

- NR PCI: 527
NR ARFCN: 504990
21:38:40
- 21:38:40 NR Beam Change Complete
BeamID: 1 --> 7
NR PCI: 527
NR ARFCN: 504990
21:38:40
- 21:38:41 NR Beam Change Complete
BeamID: 7 --> 1
NR PCI: 527
NR ARFCN: 504990
21:38:41
- 21:38:41 NR Beam Change Complete
BeamID: 1 --> 7
NR PCI: 527
NR ARFCN: 504990
21:38:41
- 21:38:41 POLQA Result
POLQA Score SWB: 4.377
MeanDelay: 2169.621(ms)
Direction: Downlink
RecordFile:
mos_2023-04-06_21-38-42_4.38_868886050785560.wav
Jitter: 0.000232(ms)
Source FileName: sample48k.wav
RecordFileIndex: 0
StartTime: 21:38:30.008
EndTime: 21:38:42.084
21:38:41
- 21:38:42 NR Beam Change Complete
BeamID: 7 --> 1
NR PCI: 527
NR ARFCN: 504990

stop

Frozen Screen

Tag

Light Mode

Statistics

File Management

Map

Message

Parameters

View

Lock Screen

Settings

Events

- ReportInterval: ms120
ReportAMount: r1
21:38:25
- 21:38:30 NR Beam Change Complete
BeamID: 5 --> 4
NR PCI: 527
NR ARFCN: 504990
21:38:30
- 21:38:31 NR Periodic Measure
ReportCells: 504990, 192; 504990, 22; 504990, 643; 504990, 609
Handover Type: Intra
measid: 64
RelationType: Unknown
Meas Latency: 25658(ms)
rsType: ssb
ReportInterval: ms120
ReportAMount: r1
21:38:31
- 21:38:32 POLQA Result
POLQA Score SWB: 4.202
MeanDelay: 2196.535(ms)
Direction: Downlink
RecordFile:
mos_2023-04-06_21-38-32_4.20_869099052339662.wav
Jitter: 0.000225(ms)
Source FileName: sample48k.wav
RecordFileIndex: 0
StartTime: 21:38:20.011
EndTime: 21:38:32.086
21:38:32
- 21:38:33 NR Beam Change Complete
BeamID: 4 --> 5
NR PCI: 527

Group 1

Group 2

Group 3

Group 4

Message

- 21:38:04 NR->PDU session modification complete
- 21:38:04 NR->UL NAS transport
- 21:38:04 NR->CellGroupConfig
- 21:38:04 NR->RRCReconfigurationComplete
- 21:38:04 NR->DL NAS transport
- 21:38:04 NR->PDU session modification command
- 21:38:04 NR->PDU session modification complete
- 21:38:04 NR->UL NAS transport
- 21:38:04 NR->ULInformationTransfer
- 21:38:04 NR->Paging
- 21:38:04 NR->Paging
- 21:38:04 NR->Paging
- 21:38:05 IMS_SIP_INVITE
- 21:38:05 IMS_SIP_PRACK
- 21:38:05 IMS_SIP_PRACK

stop

Frozen Screen

Tag

Light Mode

Statistics

File Management

Map

Message

Parameters

View

Lock Screen

Settings

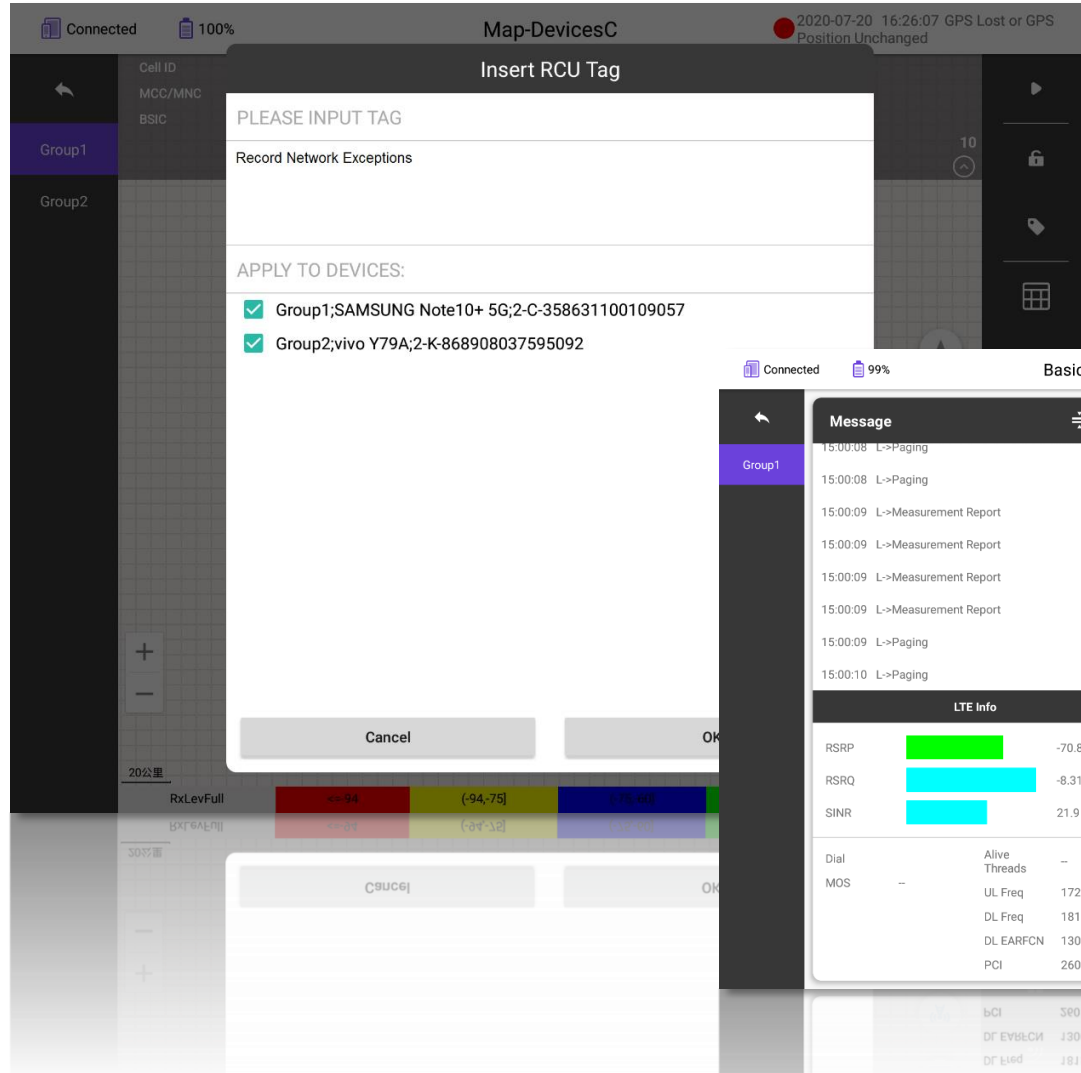
NR Info

Message

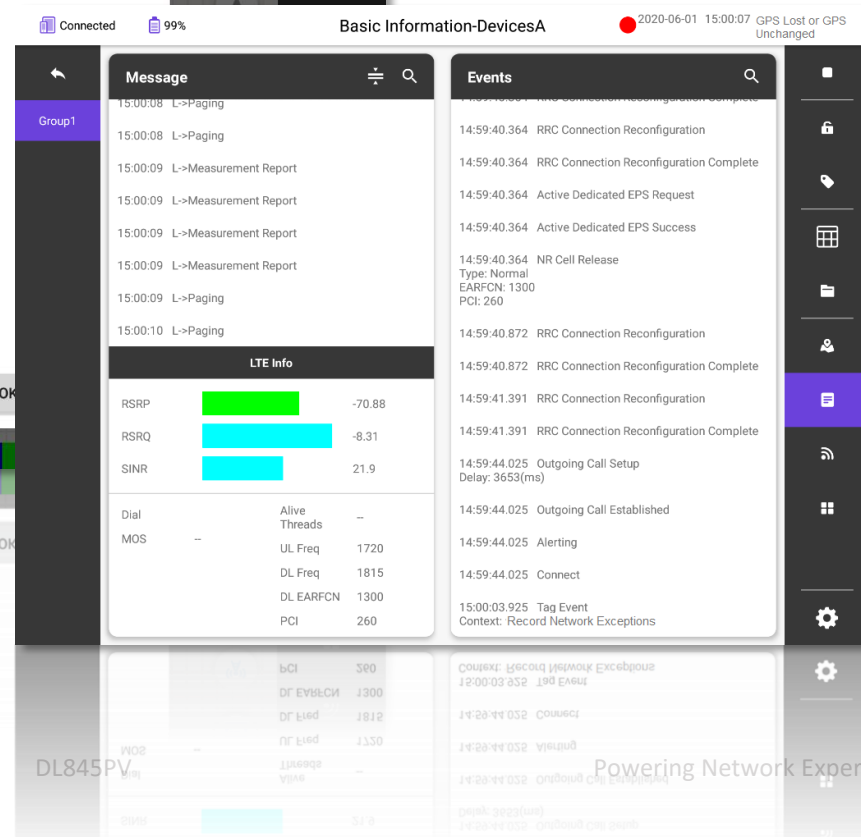
- 21:38:06 NR->CellGroupConfig
- 21:38:06 NR->RRCReconfigurationComplete
- 21:38:06 NR->Service accept
- 21:38:07 NR->Paging
- 21:38:07 NR->Paging
- 21:38:07 NR->Paging
- 21:38:07 NR->Paging
- 21:38:07 NR->Paging
- 21:38:07 IMS_SIP_INVITE->OK
- 21:38:08 IMS_SIP_ACK
- 21:38:08 IMS_SIP_INVITE->Request
- 21:38:08 IMS_SIP_INVITE->Trying
- 21:38:08 IMS_SIP_INVITE->OK
- 21:38:08 IMS_SIP_ACK

NR Info

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



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.

Mobile A (NR)
 SS-RSRP: -7225, SS-SINR: 14313, PCI: 527, Band: 41
 MAC Thr DL, MAC Thr UL, Current Service, Test Progress, MOS: 4.294
 MOC: 1/10
 Power On, Power Off, Port Reset

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)	

Mobile B (NR)
 SS-RSRP: -8625, SS-SINR: 5438, PCI: 527, Band: 41
 MAC Thr DL, MAC Thr UL, Current Service, Test Progress, MOS: 4.268
 MTC: 1/10
 Power On, Power Off, Port Reset

POLQA	A		B	
	MO	MT	MO	MT
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 (%)				

Mobile A (NR)
 SS-RSRP: -7356, SS-SINR: 14688, PCI: 527, Band: 41
 MAC Thr DL, MAC Thr UL, Current Service, Test Progress, MOS: 4.294
 MOC: 1/10
 Power On, Power Off, Port Reset

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	

Mobile B (NR)
 SS-RSRP: -8050, SS-SINR: 3250, PCI: 527, Band: 41
 MAC Thr DL, MAC Thr UL, Current Service, Test Progress, MOS: 4.268
 MTC: 1/10
 Power On, Power Off, Port Reset

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% (1/1)
Avg. Call Setup Duration (s)	2.66			0.66

PILOT
WALKTOUR
PACK

5

F
I
V
E

Supported Terminals



Supported Android-based terminals:

Device	Operating System	Model
Controller	Android Tablet	Samsung T Series Samsung S Series HUAWEI Tab
Test Phones	HiSilicon	HUAWEI P40 HUAWEI P40 pro HUAWEI MATE30 HUAWEI MATE30 pro HUAWEI MATE40 HUAWEI MATE40E pro
	Qualcomm	Samsung Galaxy S22 Samsung Galaxy S21 Samsung Galaxy S20 VIVO IQOO9 OnePlus 8 Plus

PILOT
WALKTOUR
PACK

S
I
X
6

Conclusion

Product Advantages

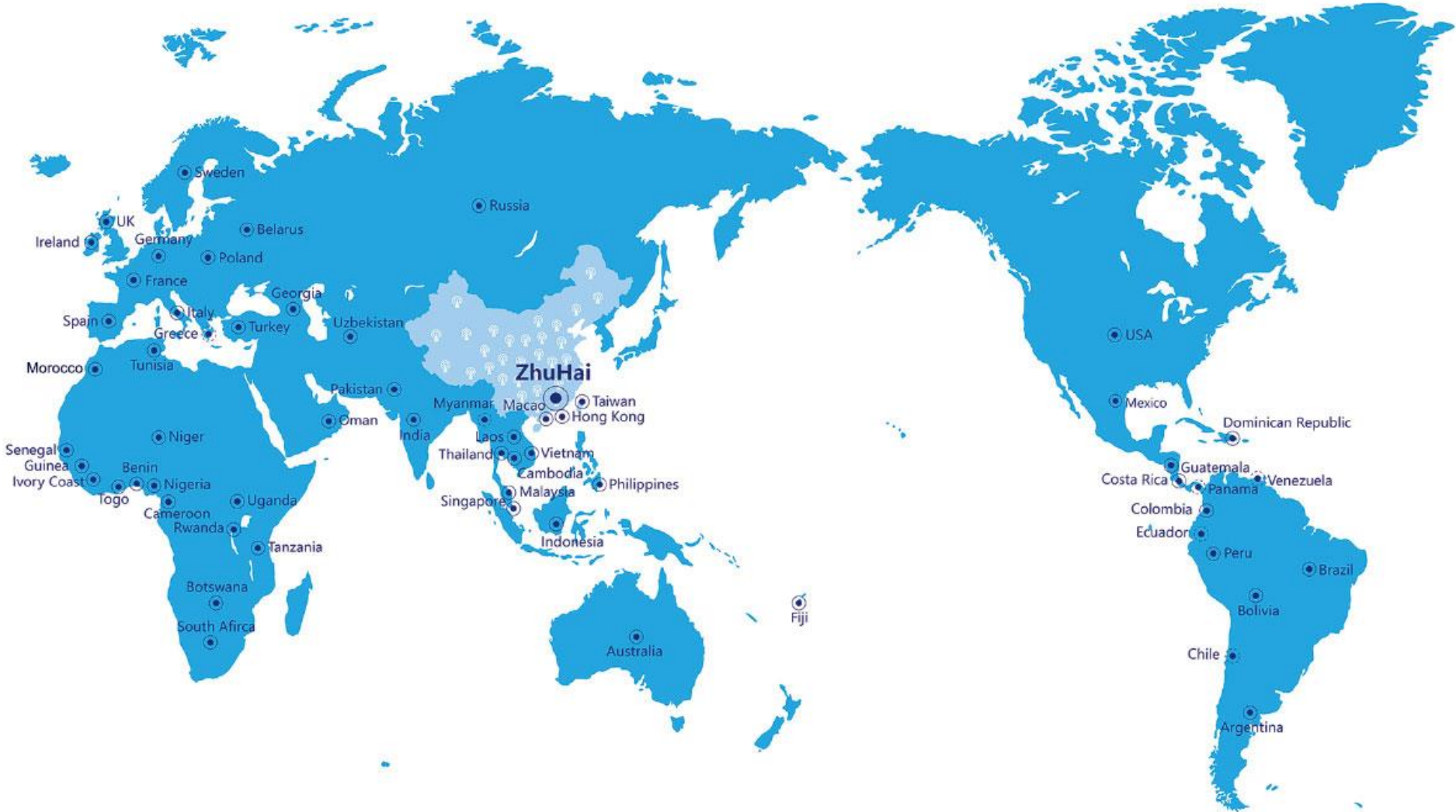
- Portable, managed by one engineer for benchmarking tests
- Small and easy to operate
- Built-in battery for continuous testing
- Built-in high-performance GPS



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!



Powering Network Experience

Website: telecom.dingli.com

Telephone: +86 0756-3391933

Fax: +86 0756-3391900

Address: No. 8, 5th Technology Road, Gangwan Avenue,
Zhuhai, 519085, P.R. China