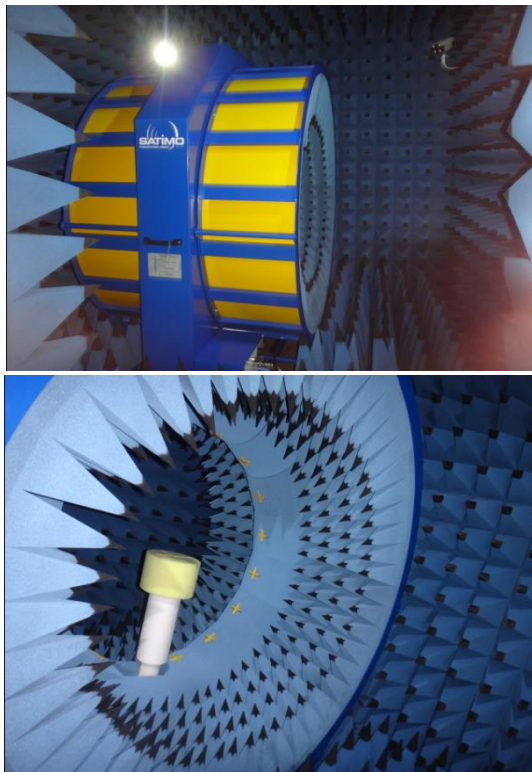


Test Report



Customer Name	Small cool	Project Name	K15
Commissioning frequency band	GSM4/W1/2/4/8 /BC0 4G:B1/2/4/3/5/7/8/12/13/17/20/28A/2 8B/66/B38/B39/B40/41	Structure mode	FPC
RF Engineer	CHENG XI TIAN	Structural Engineer	Du Qiang
Antenna Type	PIFA	Date	2024/12/15



The original imported French SATIMO StarLab 3D laboratory can accurately and quickly test the TRP, TIS, efficiency, gain, Apple diagram, directional diagram and other parameter data of communication terminal products such as mobile phones, tablet computers and notebooks.

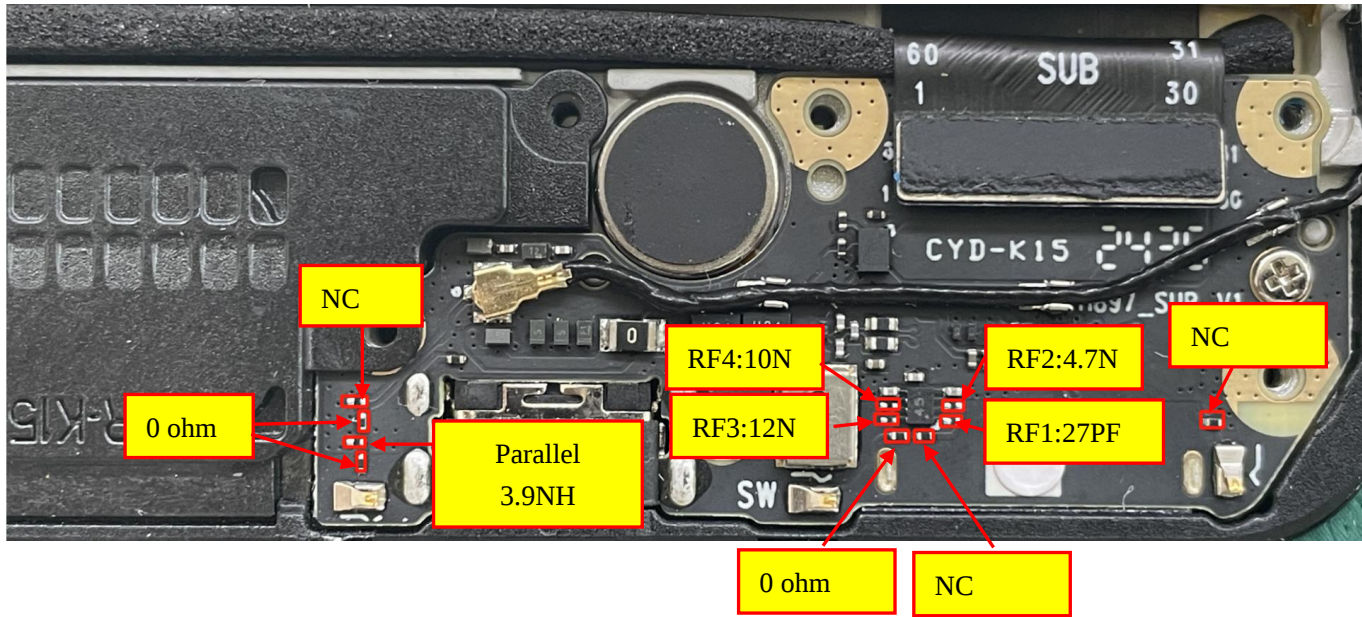
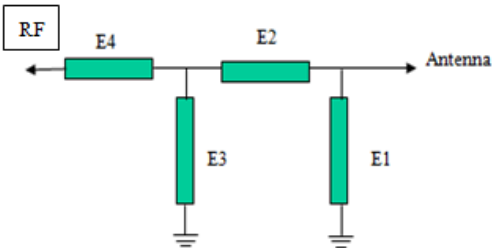


Antenna report version summary

Version	Date	Content Overview
V1	2024-10-14	Preliminary test report of sample antenna
V2	2024-11-4	EVT machine + golden board + sample modified antenna test report
V3	2024-12-02	Optimization test report
V4	2024-12-05	Gain test report

The main antenna matching circuit ----- Changes have been made (RF1 changed from 0 ohm to 27 PF)

Element	E1	E2	E3	E4
Value	String 0 ohm	Parallel 3.9NH	String 0 ohm	NC

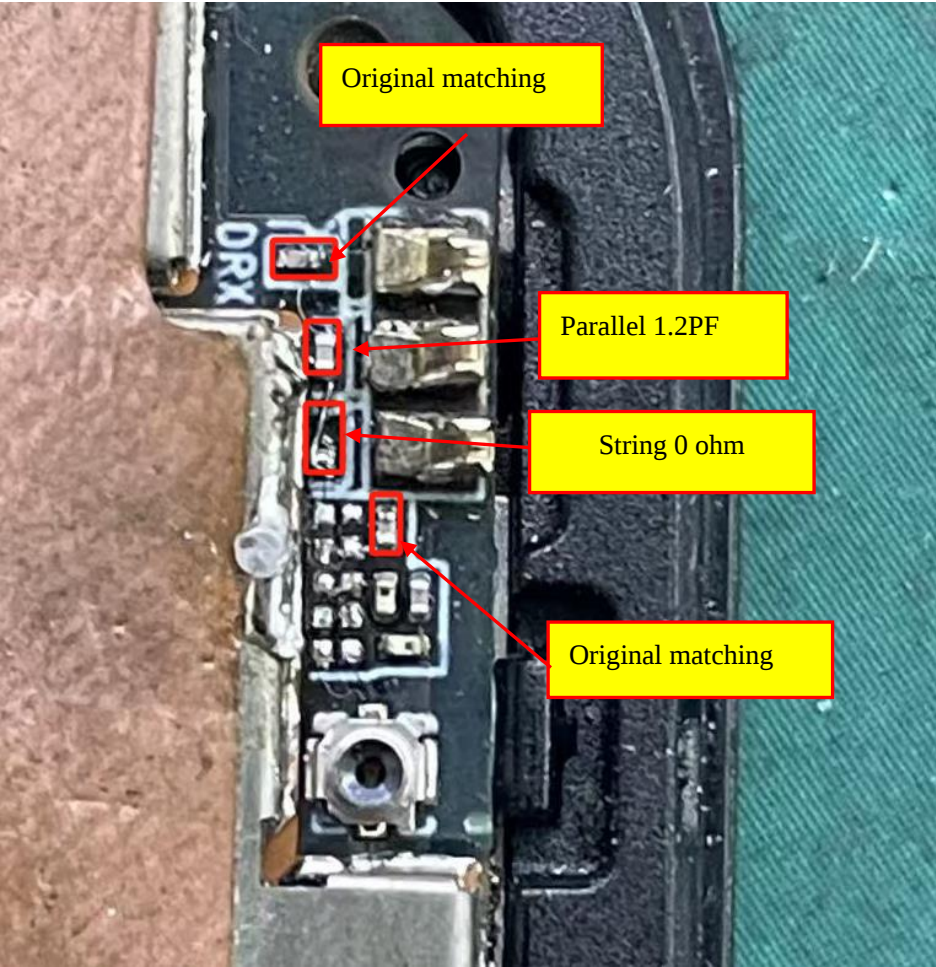
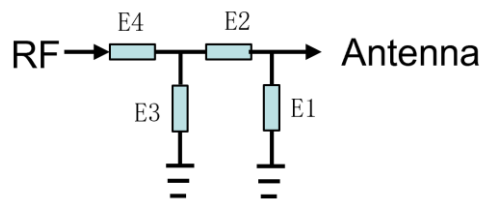


Antenna logic

Main set	RF1:GSM900 ,W900,LTE:B8 的 TRX, DCS1800,PCS1900,W1/2/4LTE:B1/2/3/4/7/66/38/39/40/41 的 DRX
	RF2:GSM850,W850 ,LTE:B20,CDMA:BC0
	RF3:LTE:B12/17/28A/B
	RF4:LTE:B13
Diversity	GSM850/900,CDMA:BC0,W5/8,LTE:B5/8/12/13/17/20/28A/B 的 DRX
	DCS1800,PCS1900,W1/2/4LTE:B1/2/3/4/7/66/38/39/40/41 的 TRX

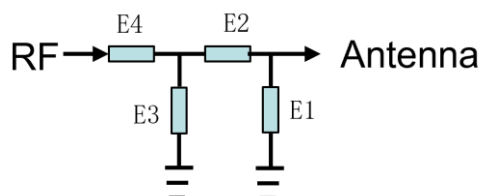
Diversity matching circuit diagram----- Changes have been made

Element	E1	E2	E3	E4
Value	Parallel 1.2PF	String 0 ohm	NC	



The 3-in-1 antenna matching circuit ----- No changes were made

Element	E1	E2	E3	E4
Value	NC	String 0 ohm	NC	String 0 ohm



Free Space OTA

Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
GSM850	L	24.0		PCS1900	L	26.8	
	M	24.9			M	26.3	
	H	25.9	-100.97		H	25.4	-101.8
GSM900	L	23.3		DCS1800	L	24.2	
	M	25.2			M	25.2	
	H	26.5	-99.0		H	26.1	-103.0
W900	L	13.8		W2100	L	17.8	
	M	14.4			M	17.5	
	H	15.8	-101.5		H	16.8	-101.6
W850	L	15.1		W1900	L	18.1	
	M	15.8			M	18.0	
	H	16.4	-104.0		H	17.9	-104.9
W1700	L	17.6		BC0	L		
	M	17.9			M		
	H	18.1	-101.4		H		
FDD-B1 (10M)	L	19.1		FDD-B2 (10M)	L	19.5	
	M	18.5			M	19.4	
	H	17.9	-90.0		H	18.5	-95.2

FDD-B3 (10M)	L	16.4		FDD-B4 (10M)	L	16.6	
	M	17.9			M	17.3	
	H	18.2	-91.0		H	17.7	-91.7
FDD-B5 (10M)	L	16.0		TDD-B7 (10M)	L	18.0	
	M	16.9			M	18.0	
	H	16.8	-90.0		H	17.5	-89.3
FDD-B8 (10M)	L	14.7		FDD-B12 (10M)	L	16.6	
	M	15.8			M	17.9	
	H	16.3	-87.0		H	17.1	-92.5
FDD-B13 (10M)	L	17.2		FDD-B17 (10M)	L	17.7	
	M	17.0			M	17.6	
	H	16.8	-91.4		H	17.2	-92.9
FDD-B20 (10M)	L	16.8		FDD-B28 A (10M)	L	17.5	
	M	16.9			M	17.4	
	H	17.0	-89.7		H	17.2	-87.6
FDD-B28 B (10M)	L	17.3		FDD-B66 (10M)	L	16.4	
	M	17.3			M	17.4	
	H	17.3	-87.8		H	18.0	-91.2
FDD-B38 (20M)	L	17.4		TDD-B39 (20M)	L	18.8	
	M	16.9			M	18.9	
	H	16.5	-88.6		H	18.6	-91.3
FDD-B40 (20M)	L	16.3		TDD-B41 (20M)	L	17.1	
	M	17.4			M	16.9	
	H	17.8	-88.5		H	15.8	-87.0

WIFI OTA

2.4G-B (11M)	1	7.8	-80.3	5G-A (54M)	36	7.6	-70.5
	6	8.7	-80.7		64	10.1	-73.0
	13	9.2	-81.6		165	6.1	-68.1



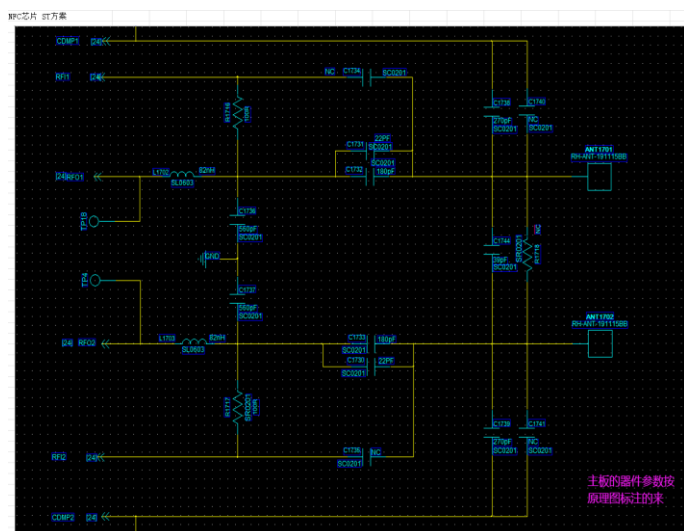
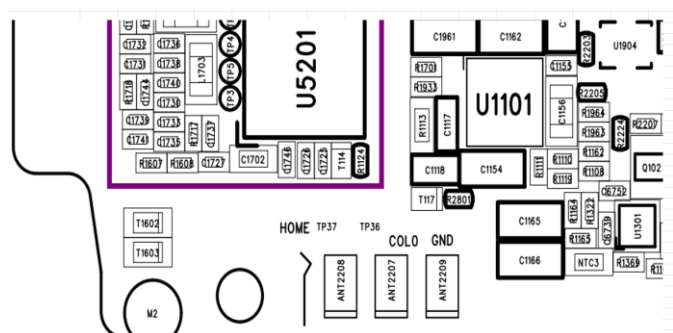
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Inst/State

S22 Smith (R+jX) Scale 1.000u [F1]

1	1.0000000 MHz	12.411 0 -449.15 0	354.14 pF
2	13.3600000 MHz	10.767 0 -2.6718 0	4.1930 nF
>3	20.0000000 MHz	5.6434 0 -389.03 0	20.454 nF

Start 1 MHz Stop 20 MHz Sm Plt C

IFBW 70 kHz





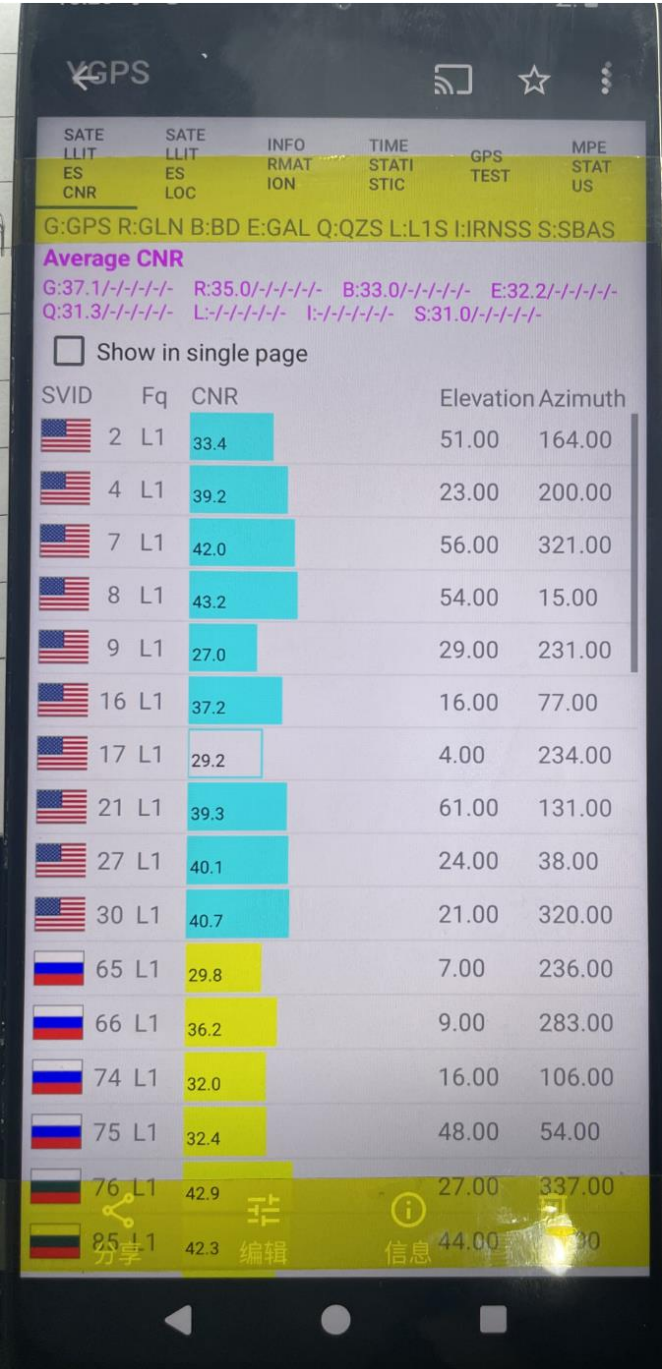
深圳市无限智联科技有限公司

Shenzhen wiselink technology co.,ltd

Position number	Value	Remarks
L1703/L1702	82NH	The overcurrent capacity is not less than 350MA 50V ±2%
C1736/1737	560PF	
R1717/R1716	100R	
C1731/C1730	22PF	
C1732/C1733	150PF	
C1734/C1735	NC	
C1738/C1739	150PF	
C1744	68PF	
C1740/C1741	NC	
R1718	NC	

Card type	Card reading distance (MM)
TYPE 1 Tag NFC ANEF (ISO14443)	40
TYPE 2 Tag NTAG-215 (M)	15
TYPE 2 Tag Mif one (ISO14443 /M)	35
TYPE 3 Tag Felica Rc-S966	30
TYPE 4 Tag NFC-A (TA32) (ISO14443)	15
TYPE 4 Tag NFC-B (TB32) (ISO14443)	15
TYPE 5 Tag NFC-V (ISO15693)	35
MF1 (M)	40
SPD Bank Card (A)	25
Identity card (B)	15
Shenzhen Tong (A)	20

GPS measurement



Explanation: The test was conducted on the rooftop of the company. The GPS satellite search results are shown in the above figure.

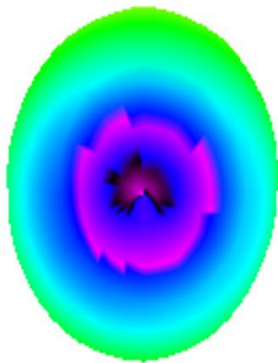
Antenna gain (Antenna Gain)

Standard	Band	Gain(dbi)
LTE	FDD-B1	-1.89
LTE	FDD-B2	-2.89
LTE	FDD-B3	1.53
LTE	FDD-B4	1.53
LTE	FDD-B5	-4.41
LTE	FDD-B7	2.47
LTE	FDD-B8	-5.81
LTE	FDD-B12	-9.04
LTE	FDD-B13	-6.3
LTE	FDD-B17	-9.04
LTE	FDD-B20	-4.41
LTE	FDD-B28A	-7.68
LTE	FDD-B28B	-7.68
LTE	FDD-B66	1.53
LTE	TDD-38	-2.17
LTE	TDD-39	-2.89
LTE	TDD-40	0.72
LTE	TDD-41	-4.67
WCDMA	WCDMA-B1	-1.89
WCDMA	WCDMA-B2	-2.89
WCDMA	WCDMA-B4	1.53
WCDMA	WCDMA-B5	-4.41
WCDMA	WCDMA-B8	-5.81
CDMA	BCO	-4.41
GSM	GSM 850	-4.41
GSM	GSM 900	-5.81
GSM	DCS 1800	1.53
GSM	PCS 1900	-2.89

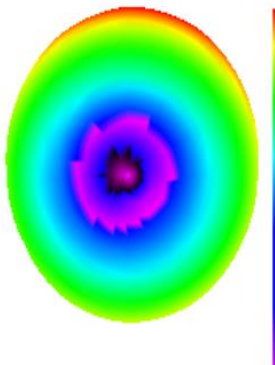
GPS	1575	-0.75
2.4G WiFi/BT	2.4G-2.5G	-1.57
5G WIFI	5.1G-5.85G	2.39

Apple Chart

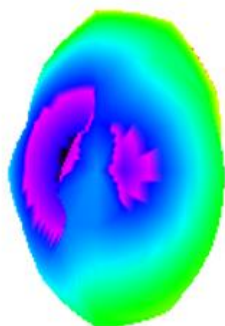
GSM900/W900/LTE-B8



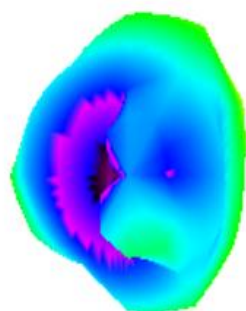
GSM850/W850/LTE-B5/20/CDMA



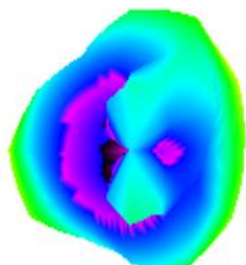
DCS1800/LTE-B3



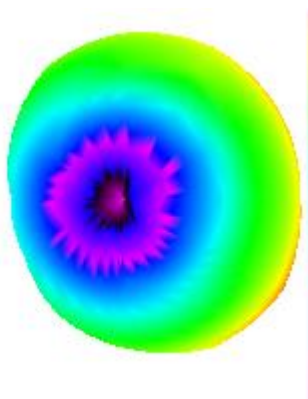
PCS1900/W1900/



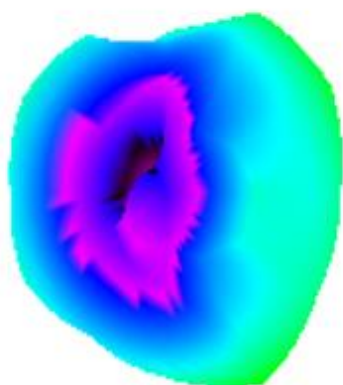
W2100/B1



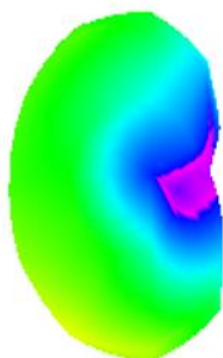
LTE-B28/12/17/13



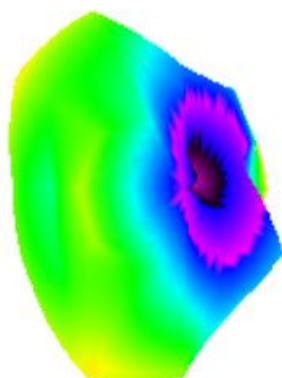
LTE-B7/38/41



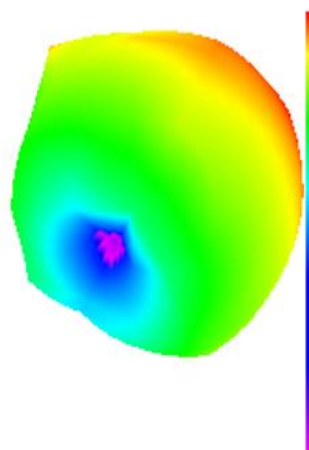
GPS



2.4G WIFI/BT



5G WIFI



Environmental treatment:

