

Antena Test Report



Customer Name: Changcheng

Customer Project Name: LM101016S

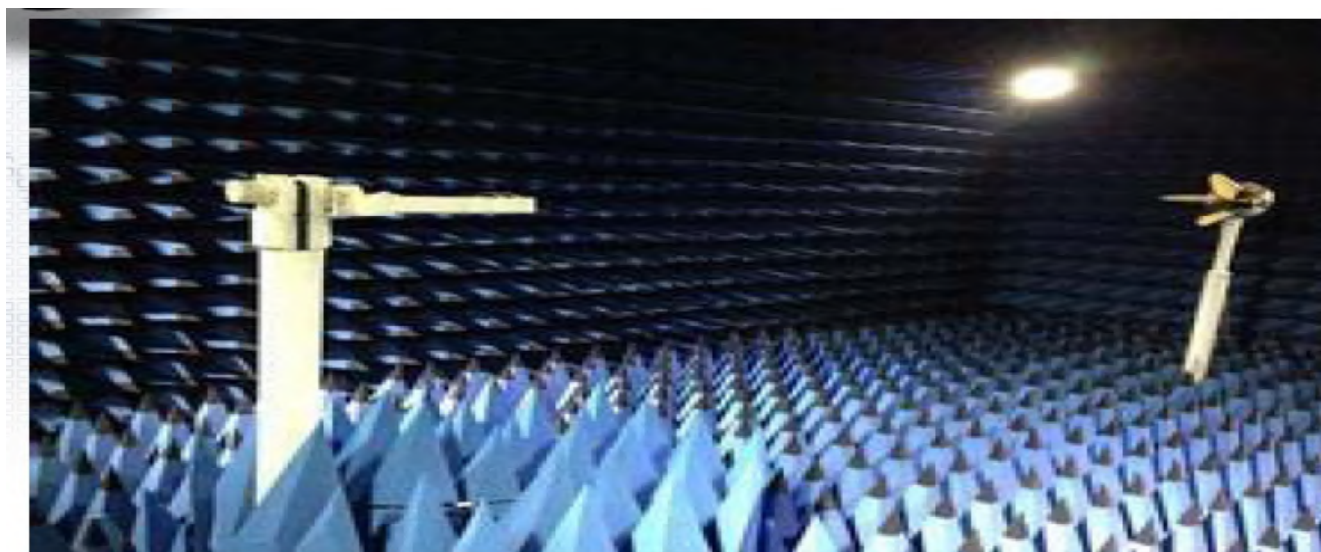
Band: 2G: 850/900/1800/1900, 3G: 850/900/1900/2100, 4G:
FDD:B1/B3/B4/B5/B7/B8/B28;GPS/WIFI 2.4G/5.8G/BT

Version: A

Date: 2024-12-4

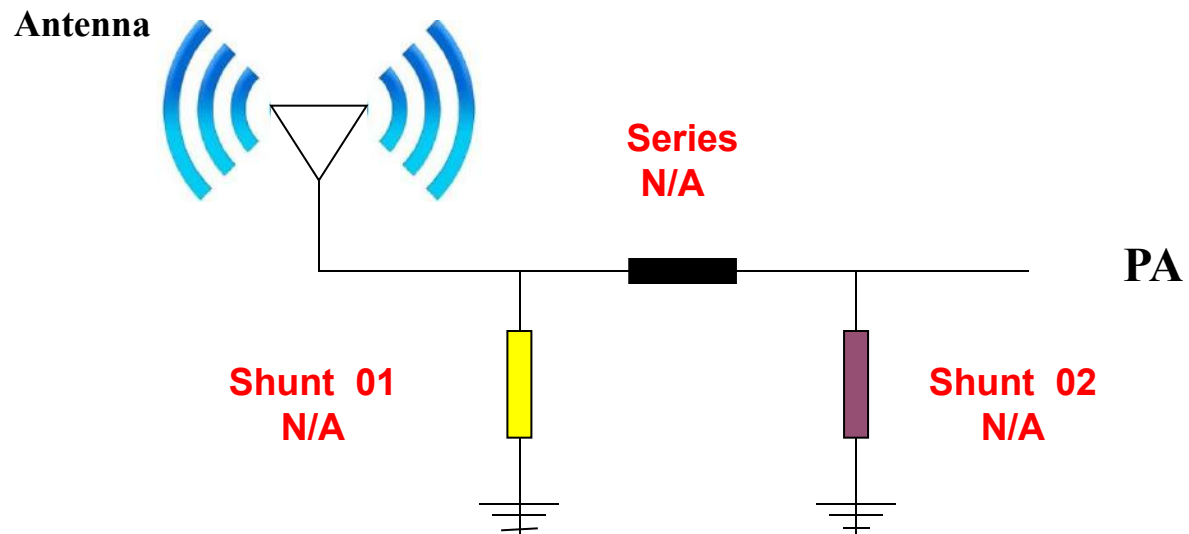
Test system

Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5062A
OTA Test	TRP&TIS	Agilent 8960 E5515C& Agilent 4438C&CMW500 &CMW270 ETS&SATIMO
Gain & Efficiency	Gain & Efficiency	ETS&SATIMO Agilent 5071C



The motherboard circuit has not been modified

Antenna Matching Network



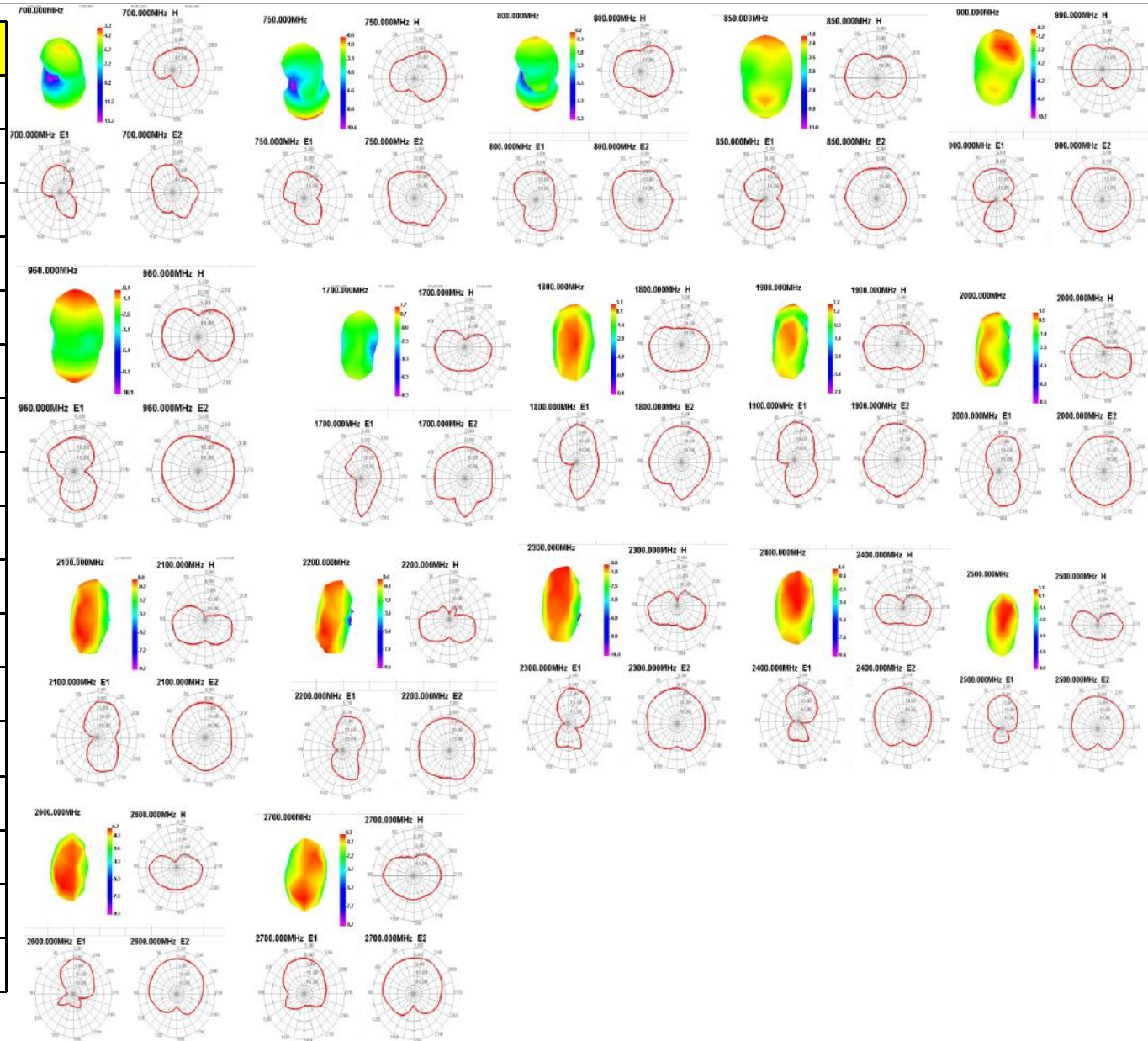
Location	Description	Vendor
Shunt 01	N/A	N/A
Series	N/A	N/A
Shunt 02	N/A	N/A

Content

1. Antenna Matching Network
2. *S11 Parameter-VSWR*
3. 1 Gain & Efficiency
3. 2 3D Pattern
4. OTA Data
5. Antenna Assembly & environmental processing
6. conclusion

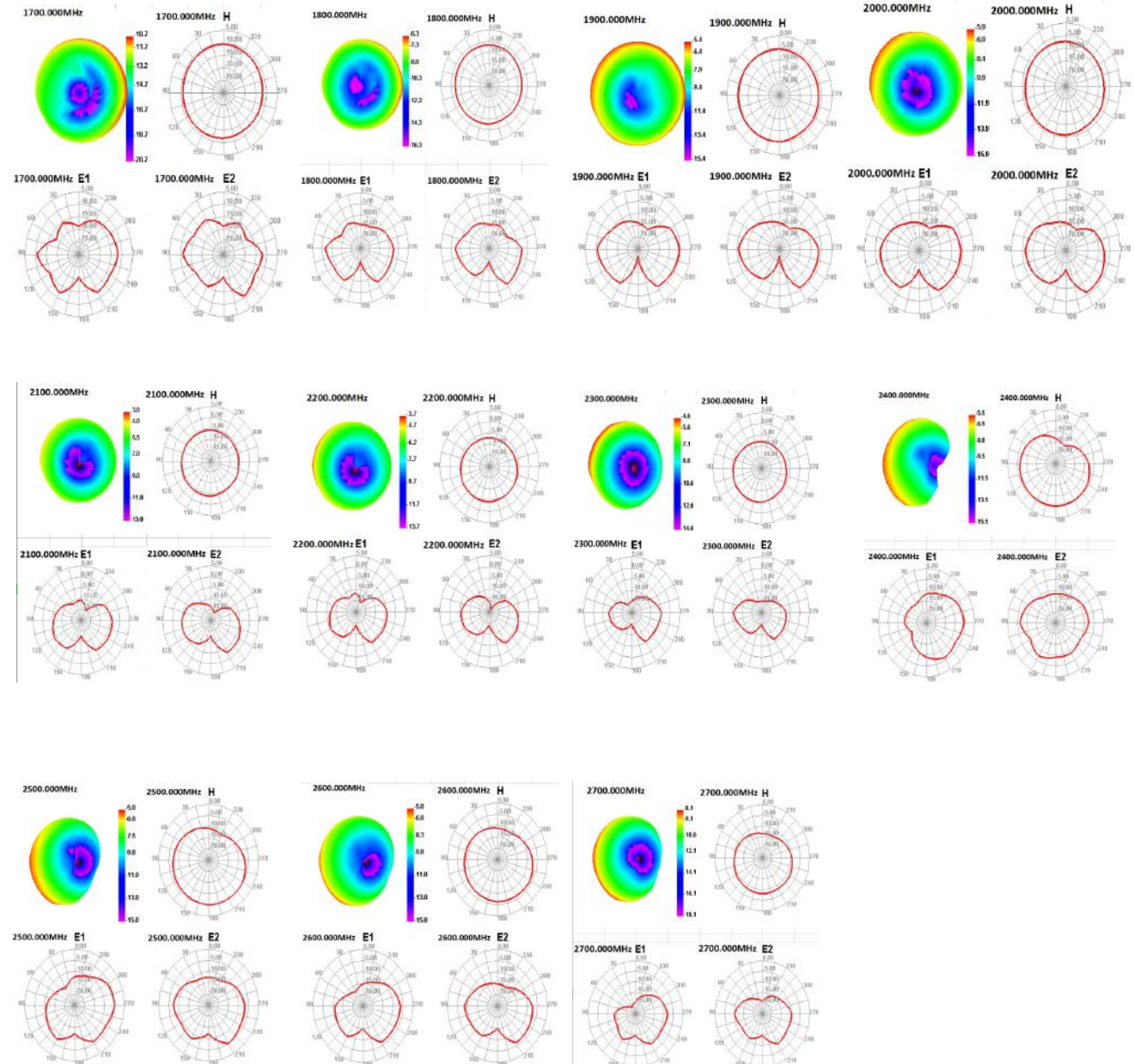
Gain & Efficiency-4G

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
700	10.6	-3.18
750	12.73	-0.57
800	25.22	0.66
850	38.78	-0.99
900	26.22	-0.23
960	20.52	-0.08
1700	40.43	1.74
1800	38.94	1.08
1900	40.96	2.2
2000	37.71	1.48
2100	35.31	0.75
2200	38.76	0.57
2300	35.47	-0.04
2400	35.25	0.38
2500	35.37	1.07
2600	33.12	0.66
2700	35.26	0.28



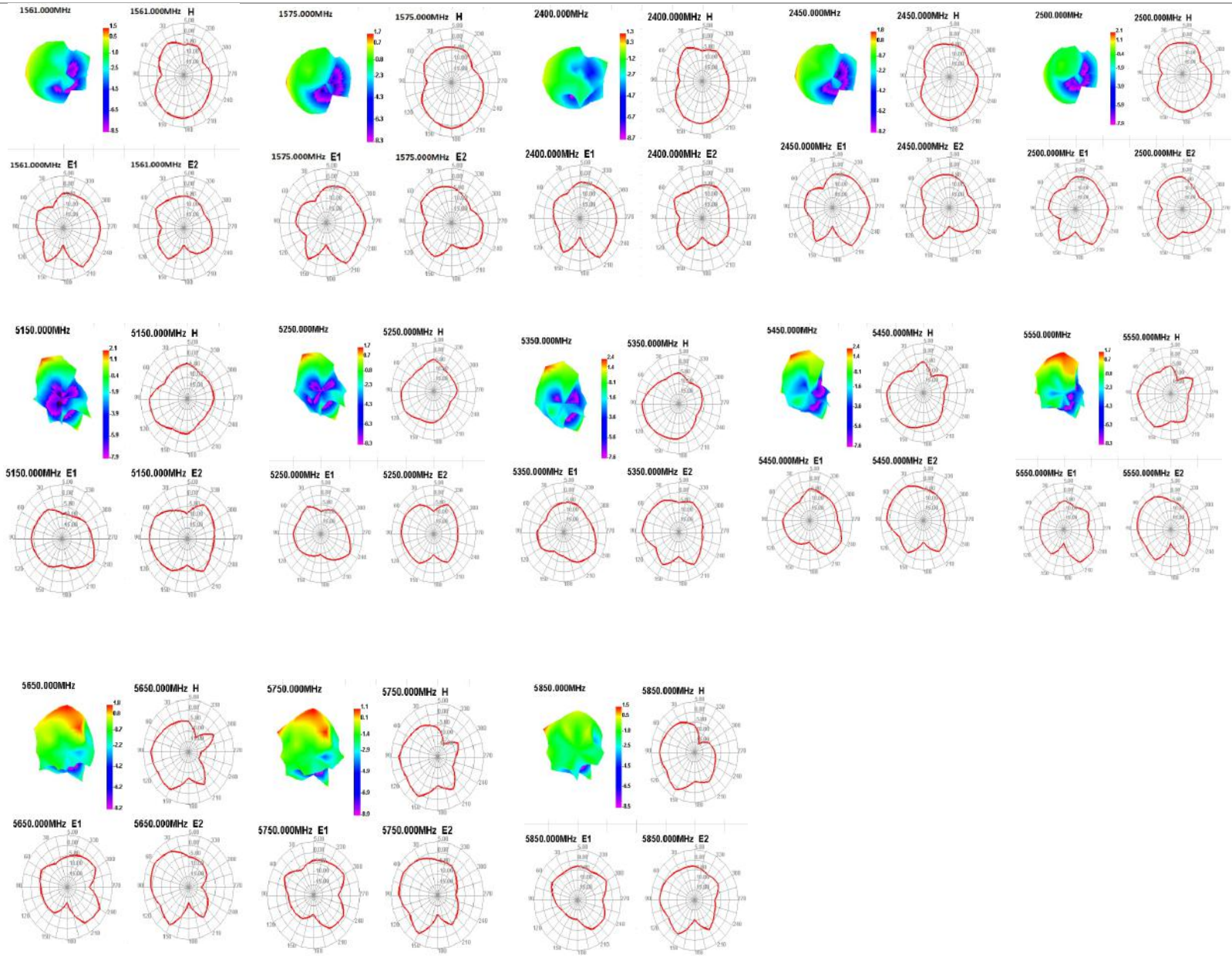
Gain & Efficiency-diversity

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
1700	4.55	-10.67
1800	11.97	-6.27
1900	17.22	-5.44
2000	15.84	-5.86
2100	16.29	-3.03
2200	11.42	-3.72
2300	15.77	-4.56
2400	12.74	-5.5
2500	15.21	-5.01
2600	11.68	-5.8
2700	7.15	-8.06



Gain & Efficiency-Wifi/Gps/Bt

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
1561	35.63	1.51
1575	36.44	1.67
2400	43.45	1.32
2450	44.73	1.78
2500	42.22	2.07
5150	44.83	2.06
5250	40.58	1.72
5350	37.91	2.36
5450	39.47	2.35
5550	41.98	1.68
5650	43.18	1.75
5750	41.46	1.12
5850	40.24	1.45



GSM/WCDMA Free Space 3D Active data

BAND		GSM850			EGSM900		
3D	Channel	128	190	251	1	60	124
	TRP (dbm)	28.15	27.63	26.67	26.52	26.35	25.41
	TIS (dbm)	-103.37		-102.52	-102.17		-100.29

BAND		DCS1800			PCS1900		
3D	Channel	512	698	885	512	661	810
	TRP (dbm)	24.54	25.43	25.18	24.35	24.65	24.27
	TIS (dbm)	-103.06		-102.85	-102.27		-102.83

BAND		WCDMA W1			WCDMA W2		
3D	Channel	10562	10700	10838	9662	9800	9938
	TRP (dbm)	18.37	18.42	18.06	18.11	18.52	18.63
	TIS (dbm)	-106.19		-105.62	-105.37		-105.29

BAND		WCDMA W5			WCDMA W8		
3D	Channel	2937	3012	3088	2937	3012	3088
	TRP (dbm)	17.41	17.52	16.63	16.44	16.26	15.15
	TIS (dbm)	-102.85		-101.34	-100.13		-99.77

LTE-FDD Free Space 3D Active data

BAND		FDD-LTE B1			FDD-LTE B3		
3D	Channel	18050	18300	18550	19250	19575	19900
	TRP (dbm)	18.56	18.33	18.41	18.18	18.56	18.31
	TIS (dbm)	-91.71		-92.19	-91.35		-92.06

BAND		FDD-LTE B4			FDD-LTE B5		
3D	Channel	20000	20175	20350	20450	20525	20600
	TRP (dbm)	18.28	18.06	18.27	18.15	17.26	17.19
	TIS (dbm)	-91.52		-91.36	-87.29		-87.63

BAND		FDD-LTE B7			FDD-LTE B8		
3D	Channel	20800	21100	21400	21500	21625	21750
	TRP (dbm)	18.56	18.14	18.89	16.31	16.19	15.27
	TIS (dbm)	-90.51		-90.43	-86.65		-86.04

BAND		FDD-LTE B28		
3D	Channel	27260	27435	27610
	TRP (dbm)	12.32	13.11	13.93
	TIS (dbm)	-85.52		-86.11

2.4G WIFI OTA Data

2. 4GHz WIFIOTA									
Test Items		Bandwidth	Channel	Fre (GHz)	Fre Span (GHz)	Data Rate (Mbps)		Free Space (Bm)	
						TRP	TIS	TRP 11M	TIS 11M
2.4 WIFI	11b	20	CH1	2.412	2401-2423	11Mbps		13.79	-80.68
2.4 WIFI	11b	20	CH6	2.432	2426-2448	11Mbps		13.83	-80.53
2.4 WIFI	11b	20	CH12	2.467	2456-2478	11Mbps		13.52	-80.41

2. 4GHz WIFIOTA									
Test Items		Bandwidth	Channel	Fre (GHz)	Fre Span (GHz)	Data Rate (Mbps)		Free Space (Bm)	
						TRP	TIS	TRP 6M	TIS 54M
2.4 WIFI	11g	20	CH1	2.412	2401-2423	54Mbps		13.22	-68.51
2.4 WIFI	11g	20	CH6	2.432	2426-2448	54Mbps		13.07	-68.34
2.4 WIFI	11g	20	CH12	2.467	2456-2478	54Mbps		13.39	-68.72

2.4G WIFI OTA Data

2. 4GHz WIFIOTA									
Test Items		Bandwidth	Channel	Fre (GHz)	Fre Span (GHz)	Dats Rate (Mbps)		Free Space (Bm)	
						TRP	TIS	TRP 6. 5M	TIS 65M
2. 4 WIFI	11n	20	CH1	2. 412	2401-2423	65Mbps		12. 83	-67. 53
2. 4 WIFI	11n	20	CH6	2. 432	2426-2448	65Mbps		12. 77	-67. 34
2. 4 WIFI	11n	20	CH12	2. 467	2456-2478	65Mbps		12. 96	-67. 67

5G WIFI OTA Data

5GHz WIFIOTA									
Test Items		Bandwidth	Channel	Fre (GHz)	Fre Span (GHz)	Dats Rate (Mbps)		Free Space (Bm)	
						TRP	TIS	TRP 6M	TIS 54M
5G WIFI	11a	20	CH36	5.18	5170-5190	54Mbps		9.76	-68.58
5G WIFI	11a	20	CH60	5.3	5290-5310	54Mbps		9.15	-68.73
5G WIFI	11a	20	CH100	5.5	5490-5510	54Mbps		9.22	-67.24
5G WIFI	11a	20	CH120	5.6	5590-5610	54Mbps		9.36	-68.59
5G WIFI	11a	40	CH142	5.71	5690-5730	54Mbps		9.15	-68.32
5G WIFI	11a	20	CH161	5.825	5815-5835	54Mbps		9.41	-68.17

5G WIFI OTA Data

5GHz WIFIOTA									
Test Items		Bandwidth	Channel	Fre (GHz)	Fre Span (GHz)	Dats Rate (Mbps)		Free Space (Bm)	
						TRP	TIS	TRP 6.5M	TIS 65M
5G WIFI	11n	20	CH36	5.18	5170-5190	65Mbps		9.57	-66.31
5G WIFI	11n	20	CH60	5.3	5290-5310	65Mbps		9.3	-66.57
5G WIFI	11n	20	CH100	5.5	5490-5510	65Mbps		9.29	-65.27
5G WIFI	11a	20	CH120	5.6	5590-5610	54Mbps		9.12	-66.39
5G WIFI	11a	40	CH142	5.71	5690-5730	54Mbps		9.17	-66.41
5G WIFI	11a	20	CH161	5.825	5815-5835	54Mbps		9.26	-66.53

GPS measurement map



Tested on the rooftop of the 5th floor, the first positioning time is about 60 seconds, and the maximum star value is around 40 stars with 3 stars

Antenna installation location diagram



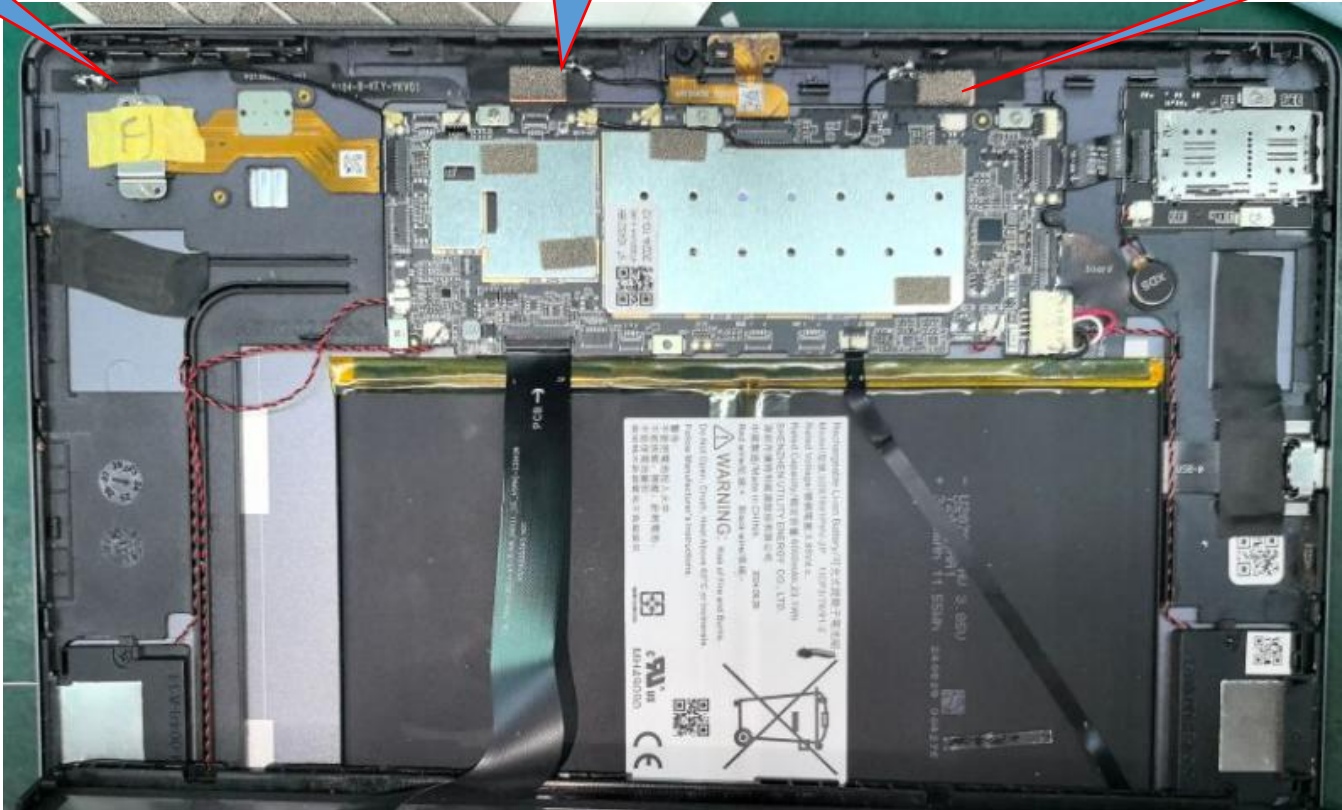
Diversity Antenna



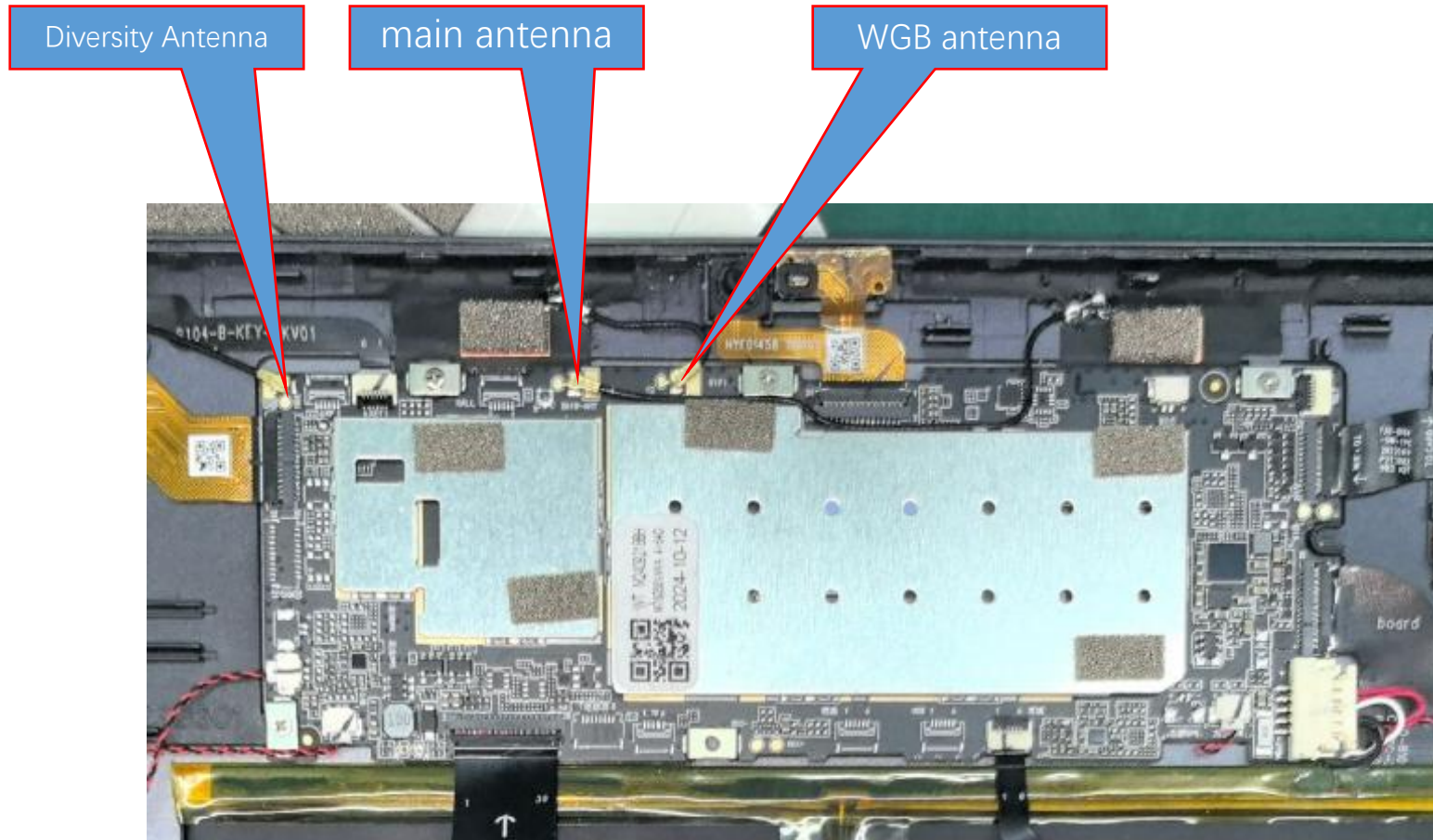
WGB antenna



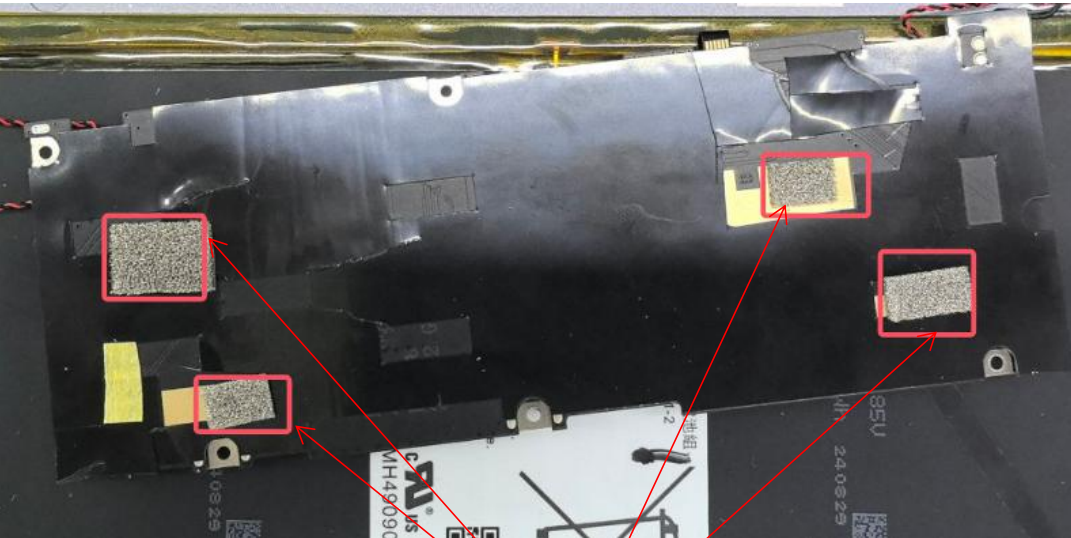
4G main antenna



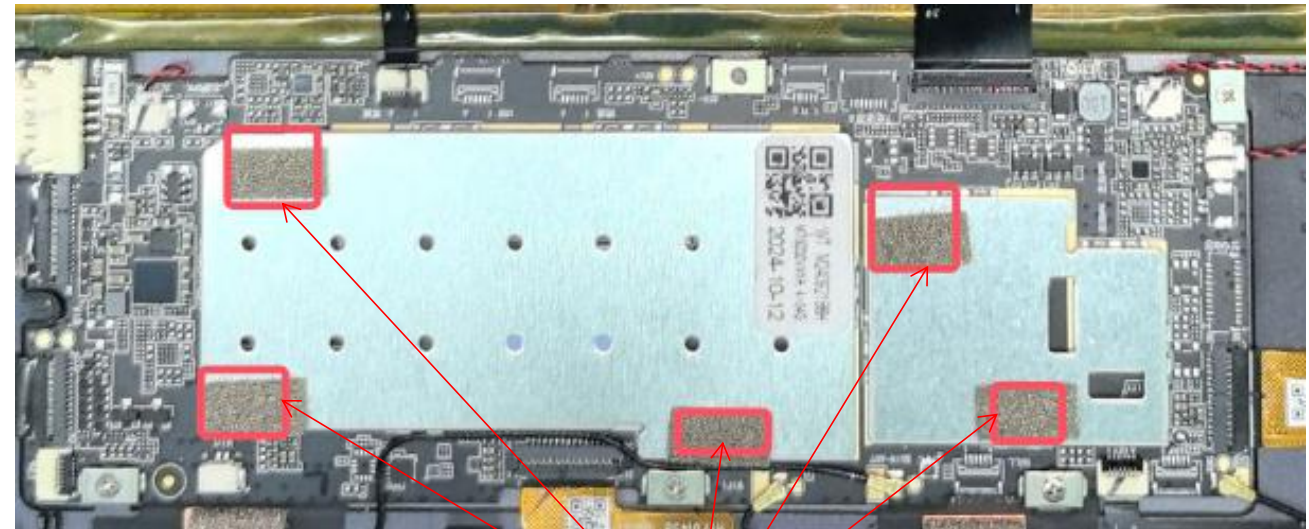
Antenna mount corresponding to board end position



environmental treatment

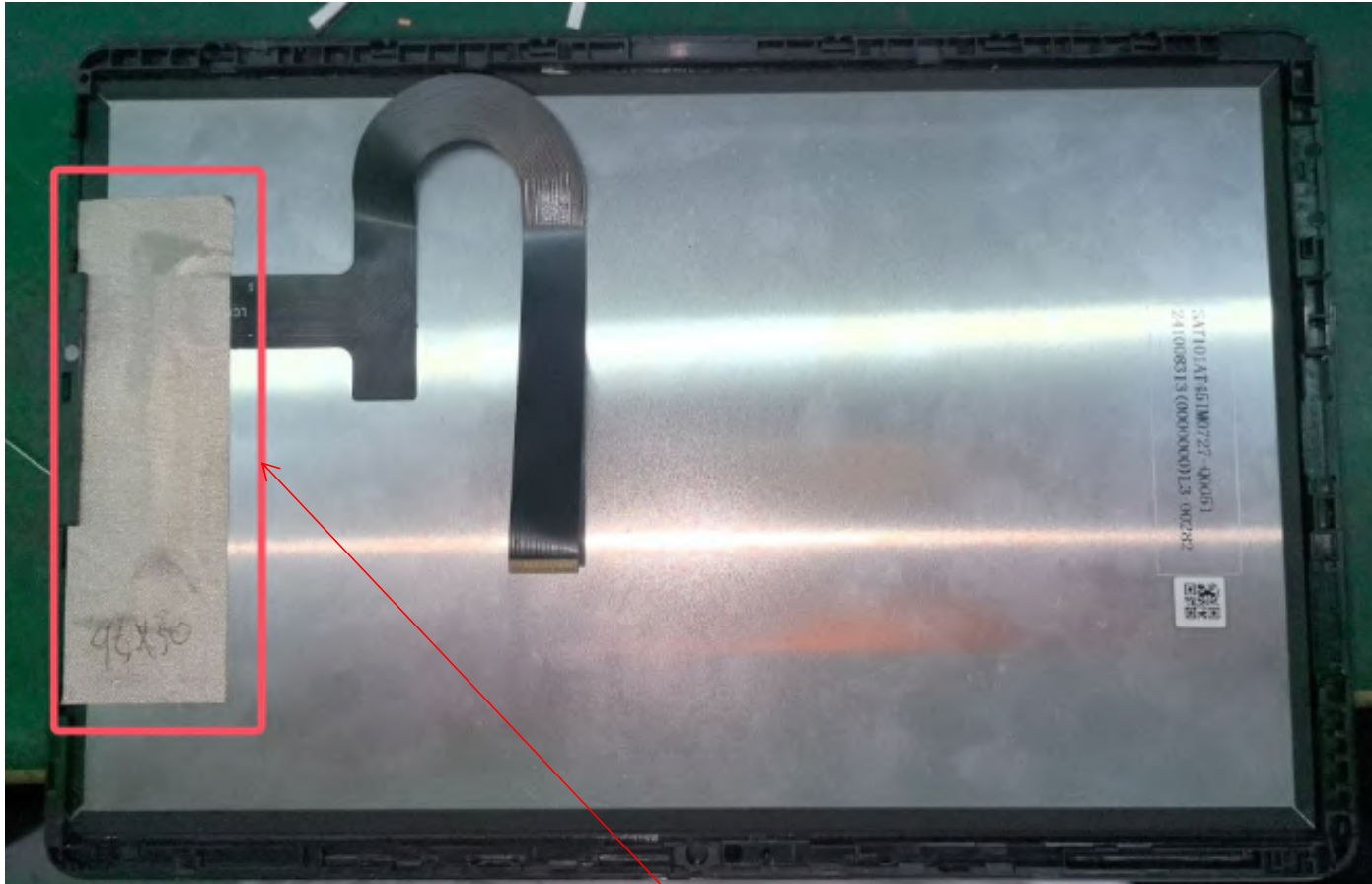


Attach conductive sponge to the copper leakage area at the bottom of the motherboard and ground it to the metal bottom shell



The motherboard shielding cover is covered with conductive sponge and grounded to the screen

environmental treatment



Screen cable package with conductive cloth grounding (conductive cloth size 95 × 30mm)

Shunda Cheng, thank you for your support

Thanks

Company Address: 4th Floor, Building B5, Xinfu Industrial Park,
Chongqing Road, Fuyong Town, Bao'an District, Shenzhen