

Shenzhen Etheta Communication

Technology Co., Ltd.

(Shenzhen Etheta)

Customer: TCL Communication Ltd.

Project name: T440G

Product name: T440G - cellular & wifi antenna

Date: 2025.09.30

1. Antenna specification and test location

Antenna 0/1/2/3/4/5/6/7

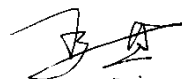
Material: FPC

Manufacturer: Shenzhen Haitong

Manufacturer Address: Block B, 3rd Floor, Building 1, Baisha Science and Technology Industrial Park, No. 3011 Shahe West Road, Nanshan District, Shenzhen

Antenna gain and radiation pattern measured in SATIMO anechoic chamber.

Test engineer: qi.ma



2. Test system introduction

2.1 Test Equipment list

Description	Manufacturer	Model	version	Cal Date
Vector Network Analyzer	Agilent Technologies	E5071C	13.30	2023.12.14
Anechoic Chamber	SATIMO	SG16	SPM 1.3.1	2023.12.14

2.2 Anechoic chamber

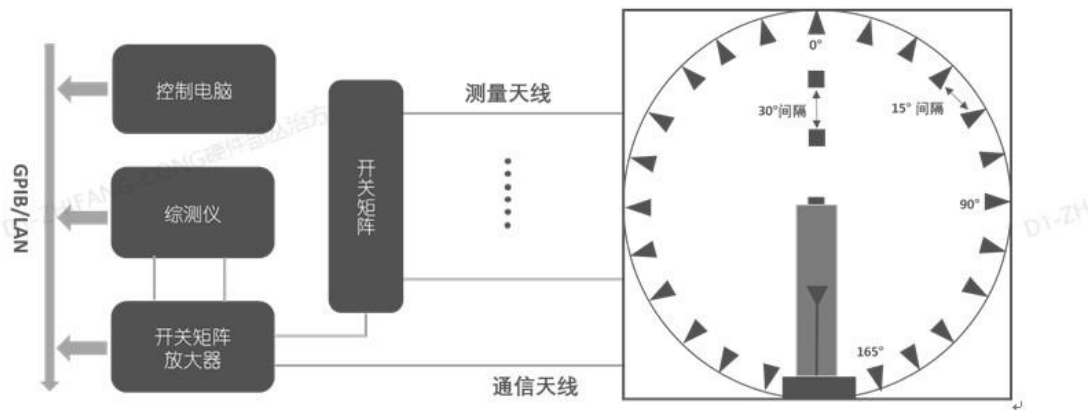
Our company has a number of anechoic chamber for OTA test. It is ranging from 400 MHz to 8.5 GHz, which can provide passive test and active test, including OTA overall 2G, 3G, 4G, 5G FR test, WiFi multi-mode test, GPS active test, Bluetooth active test. The test system can provide antenna gain, efficiency, radiation pattern, upper and lower hemisphere efficiency values and mutual disturbance correlation coefficient analysis.



2.3 test system introduction:

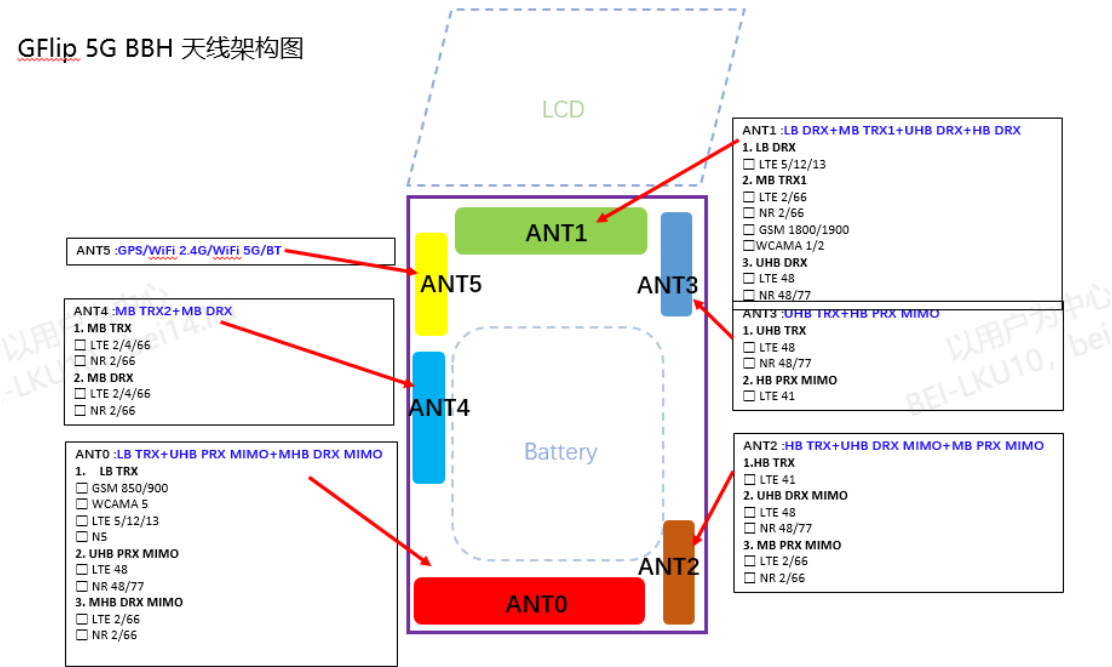
The figure above shows the connection and control process between the anechoic chamber of our company and the testing system and computer. The testing system has the characteristics of accurate, fast and simple testing. The operation interface is simple and

humanized.



3. Test result

3.1 Antenna information



Antenna information

Antenna number	Type	Model name	Description
0	FPC	BBH-ANT0	LB TRX+UHB PRX MIMO+MHB DRX MIMO
1	FPC	BBH-ANT1	LB DRX+MB TRX1+UHB DRX+HB DRX
2	FPC	BBH-ANT2	HB TRX+UHB DRX MIMO+MB PRX MIMO
3	FPC	BBH-ANT3	UHB TRX+HB PRX MIMO
4	FPC	BBH-ANT4	MB TRX2+MB DRX
5	FPC	BBH-ANT5	GPS/WiFi 2.4G/WiFi 5G/BT

Gain of Antenna 0

Band	Gain average(dBi)	Gain Peak (dBi)
GSM 850	-5.1	-2.4
GSM 900	-5.5	-2.6
LTE B2	-3.6	-1
LTE B5	-5.1	-2.4
LTE B12	-3.5	-1.3
LTE B13	-3.3	-1.2
LTE B66	-5.7	-2.2
NR N5	-5.1	-2.4
NR N77	-5.2	0.5

Gain of Antenna 1

Band	Gain average(dBi)	Gain Peak (dBi)
GSM 1800	-4.7	-0.8
GSM 1900	-4.5	-0.1
WCDMA 1	-4.6	-1
WCAMA 2	-4.5	-0.1
LTE B2	-4.2	-0.1
LTE B4	-4	-0.5
LTE B5	-4.3	-1.2
LTE B12	-5.9	-3
LTE B13	-4.8	-1.3
LTE B66	-4.1	-0.1
NR N77	-5.1	2

Gain of Antenna 2

Band	Gain average(dBi)	Gain Peak (dBi)
LTE B2	-4.5	-0.1
LTE B48	-5.9	-1.1
LTE B66	-4.6	-1
NR n77	-5.9	-1.1

Gain of Antenna 3

Band	Gain average(dBi)	Gain Peak (dBi)
LTE B41	-1.2	-0.5
NR n77	-5	-1.1

Gain of Antenna 4

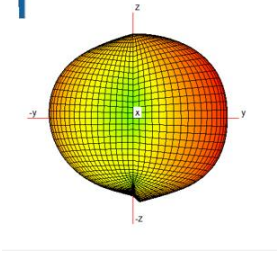
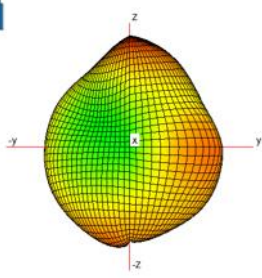
Band	Gain average(dBi)	Gain Peak (dBi)
LTE B2	-4.5	-0.4
LTE B4	-5.9	-2
LTE B66	-5.9	-2

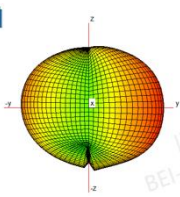
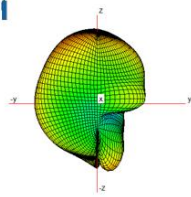
Gain of Antenna 5

Band	Gain average(dBi)	Gain Peak (dBi)
GPS	-5.4	-1.4
Wi-Fi 2.4G/BT	-5.9	-1.7
Wi-Fi 5G	-4.9	-0.5

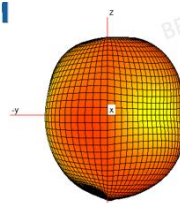
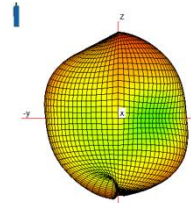
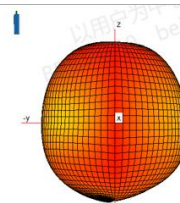
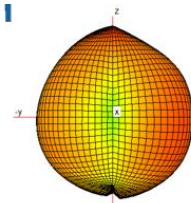
3.3 Radiation Pattern

Antenna 0

(Frequency Band)	B5	B66
3D Radiation Pattern		
Efficiency[%]	31.5	40.5
Avg Gain [dBi]	-5.1	-5.7
Peak Gain [dBi]	-2.4	-2.2
(Frequency Band)	B12	N77

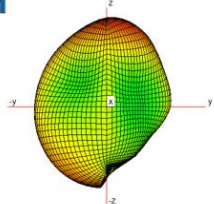
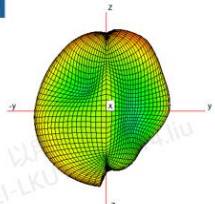
Band)		
3D Radiation Pattern		
Efficiency[%]	27.5	35
Avg Gain [dBi]	-3.5	-5.2
Peak Gain [dBi]	-1.3	0.5

Antenna 1

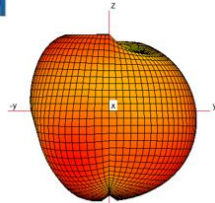
(Frequency Band)	B5	B2/B66
3D Radiation Pattern		
Efficiency[%]	37.5	39
Avg Gain [dBi]	-4.3	-4.2
Peak Gain [dBi]	-1.2	-0.1
(Frequency Band)	B12	N77
3D Radiation Pattern		
Efficiency[%]	23.3	31.5
Avg Gain [dBi]	-5.9	-5.1
Peak Gain [dBi]	-3	2

Antenna 2

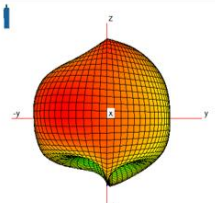
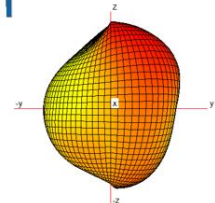
(Frequency Band)	LTE B2	LTE B66
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3D Radiation Pattern		
Efficiency[%]	35	38
Avg Gain [dBi]	-4.5	-4.6
Peak Gain [dBi]	-0.1	-1

Antenna 3

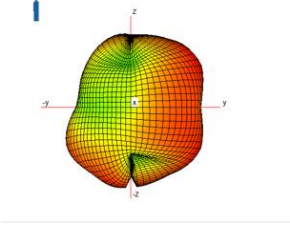
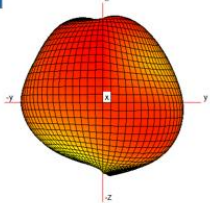
(Frequency Band)	NR n77	
3D Radiation Pattern		
Efficiency[%]	32	
Avg Gain [dBi]	-5	
Peak Gain [dBi]	1.1	

Antenna 4

(Frequency Band)	LTE B2	LTE B66
3D Radiation Pattern		
Efficiency[%]	32	30
Avg Gain [dBi]	-4.5	-5.9
Peak Gain [dBi]	-0.4	-2

Antenna 5

(Frequency Band)	WiFi 2.4G/BT	WiFi 5G
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3D Radiation Pattern		
Efficiency[%]	25.5	32
Avg Gain [dBi]	-5.9	-4.9
Peak Gain [dBi]	-1.7	-0.5