

# OTA TEST REPORT

**Applicant** Shenzhen General Test System Co., Ltd

**Product** RayZone1800

**Issue Date** July 15, 2024

Shenzhen Fu Bang Wireless Technology Co., Ltd. tested the above equipment in accordance with the requirements in **ANTI/IEEE Std 149-2008**. The test results show that the equipment tested is capable of demonstrating compliance with the Requirements as documented in this report.

Prepared by: Lunkang Yan

Approved by: Zhanghong Lai

**Shenzhen Fu Bang Wireless Technology Co., Ltd.**

*Room 302, Lianjian Industry Park, Huarong Road, Longhua District, Shenzhen, P.R. China*

# 1. Test Laboratory

## 1.1 Notes of the Test report

This report shall not be reproduced in full or partial. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of applicable standards stated above.

## 1.2 Test facility

GTS1800 Microwave Anechoic Chamber : testing frequency ranges from 600MHz to 6GHz .

## 1.3 Testing Location

Company: Shenzhen Fu Bang Wireless Technology Co., Ltd

Address: Room 302, Lianjian Industry Part, Huarong road, Longhua District,  
Shenzhen, P.R. China

Contact: lunkang Yan

Telephone: 13760182610

E-mail: 646363118@qq.com

## 1.4 Laboratory Environment

Temperature	Min.= 19°C, Max.=25°C	
Relative humidity	Min.=40%, Max.=72%	
Shield effect	0.6-7GHz	>100dB
Ground resistance	<0.5Ω	

## 2. General Description of Equipment under Test

### 2.1 Applicant and Manufacturer information

<b>Applicant Name</b>	Shenzhen General Test System Co., Ltd
<b>Applicant address</b>	Building C-A7 Suite 805,2190 Liuxian Avenue,Nanshan District,Shenzhen,P.R. China
<b>Manufacturer Name</b>	Shenzhen General Test System Co., Ltd
<b>Manufacturer address</b>	Building C-A7 Suite 805,2190 Liuxian Avenue, Nanshan District, Shenzhen,P.R. China

### 2.2 General information

EUT Description	
Product Name	RayZone1800
Model	GTS-ANT D-H
HW Version	RayZone1800 V1.0
SW Version	MaxSign 100
Antenna Type	PCB Antenna
Antenna Manufacturer	Shenzhen General Test System Co., Ltd
Test Frequency	600MHz-5.8GHz

### 2.3 Applied Standards

According to the specifications of the manufacturer,it must comply with the requirements of the following standards:

Test Method:**ANSI/IEEE Std 149-2008**

## 3. Test Conditions

### 3.1 Test Configuration

The method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test(EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 1m.

### 3.2 Test Measurement

**Spherical coordinate system**

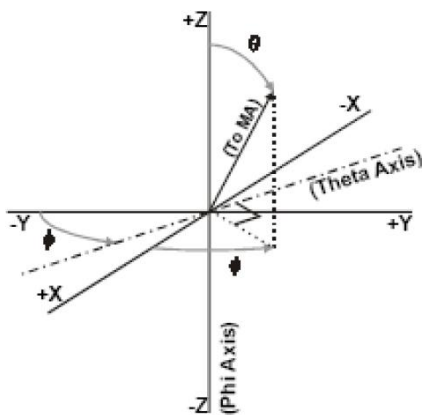
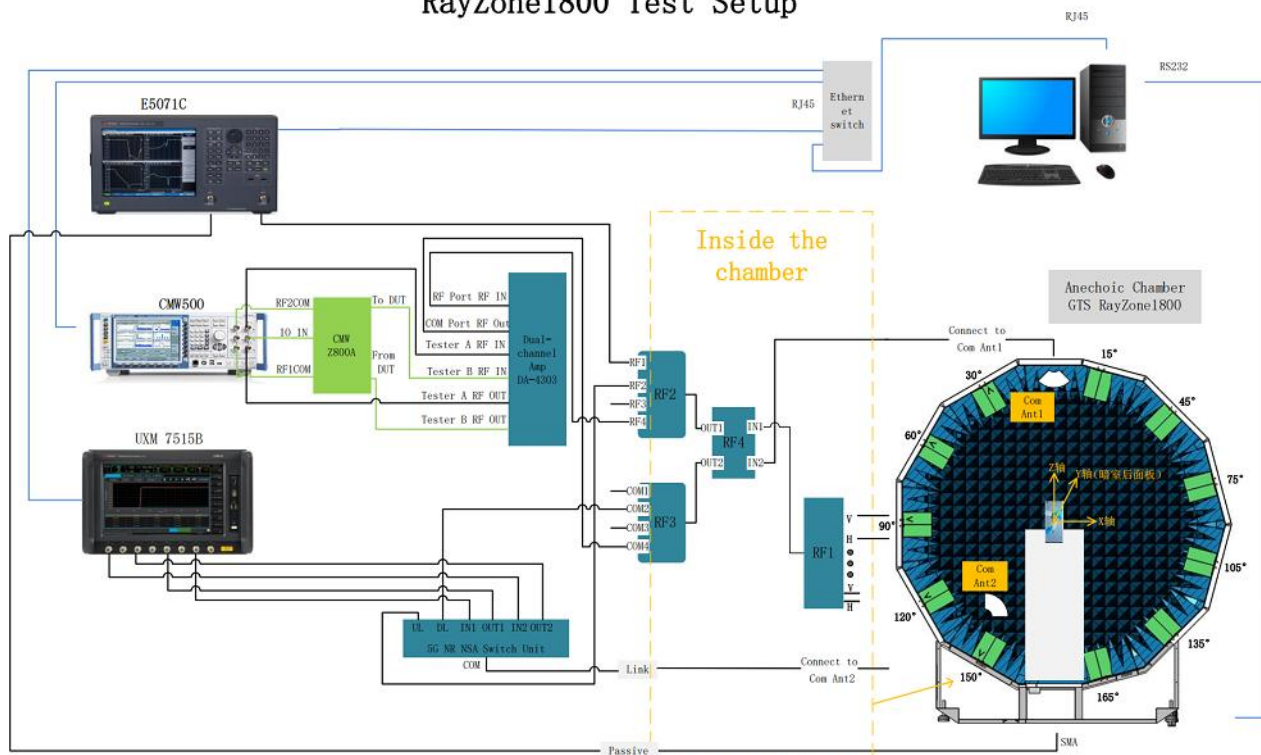


Figure 1 Test coordinate system

Note: Theta is from 0-180degree. Phi is from EUT and record the Date, the step of rotation is 15 degree.

### Test Setup

#### RayZone1800 Test Setup



## 4. Test Results

### 4.1 Gain and Efficiency

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	620	14.2	-6.5	1820	27.2	-0.3	
		630	14.5	-6.3	1840	27.7	-0.4	
		640	15.0	-5.9	1860	27.9	-0.3	
		650	15.5	-5.5	1880	29.4	-0.3	
		660	15.9	-5.1	1900	30.6	-0.2	
		670	15.4	-5.1	1920	32.3	-0.1	
		680	14.8	-6.1	1940	32.2	-0.5	
		690	14.4	-6.4	1960	33.2	-0.4	
		700	14.5	-6.3	1980	33.7	-0.7	
		710	14.7	-6.0	2000	34.3	-1.0	
		720	17.2	-5.2	2020	34.4	-1.3	
		730	18.3	-4.5	2040	32.3	-1.8	
		740	17.7	-4.4	2060	29.5	-1.5	
		750	16.9	-5.3	2080	25.6	-1.9	
		760	15.6	-5.5	2100	24.2	-1.9	
		770	14.9	-6.0	2120	23.1	-2.0	
		780	14.7	-6.3	2140	23.4	-1.7	
		790	14.4	-6.4	2160	24.0	-1.8	
		800	13.8	-6.6	2180	24.7	-2.0	
		810	15.7	-5.5	2200	24.9	-1.9	
		820	16.9	-5.0	2300	24.5	-1.8	
		830	17.8	-4.4	2320	24.3	-1.8	
		840	18.6	-4.2	2340	25.4	-1.6	
		850	19.8	-3.7	2360	26.4	-1.2	
		860	20.7	-3.5	2380	26.5	-1.2	
		870	21.8	-3.2	2400	26.0	-1.3	
		880	17.8	-4.0	2420	26.3	-1.6	
		890	20.2	-3.6	2440	26.2	-1.5	
		900	21.4	-2.9	2460	25.8	-1.4	
		910	22.0	-2.4	2480	26.3	-1.5	
		920	21.8	-2.6	2500	25.4	-1.6	
		930	20.3	-3.4	2520	25.4	-1.6	
		940	18.7	-3.8	2540	26.0	-1.3	
	950	17.3	-4.1	2560	26.3	-1.2		
	960	15.9	-5.4	2580	28.3	-0.9		
	1700	23.9	-1.5	2600	27.0	-1.0		
	1720	25.5	-1.1	2620	26.6	-1.0		
	1740	26.9	-0.9	2640	26.6	-1.1		
	1760	27.5	-0.8	2660	26.2	-0.9		
	1780	27.1	-0.9	2680	26.8	-1.2		
	1800	27.6	-0.7	2700	25.7	-1.4		



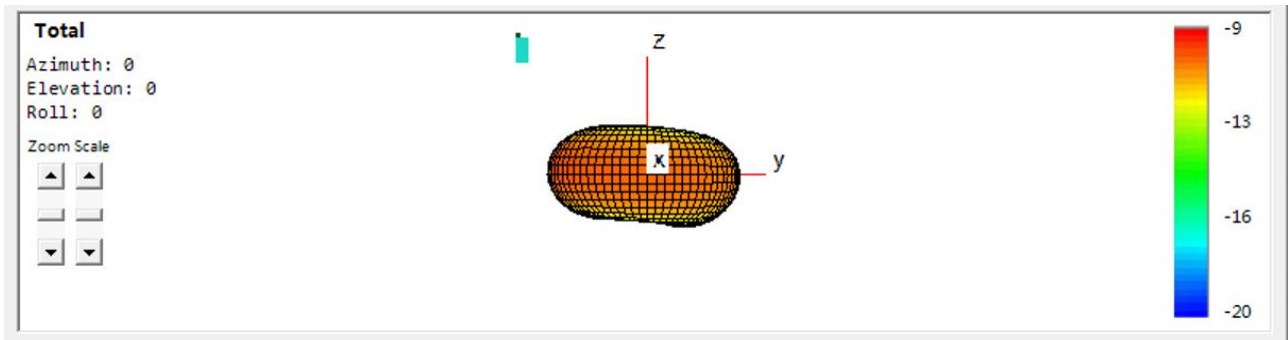
Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	1560	37.2	-0.6				
		1570	38.9	-0.2				
		1580	38.3	-0.4				
		1590	38.8	0.0				
			2400	30.1	-0.6			
			2410	30.2	-1.2			
			2420	30.6	-1.7			
			2430	31.7	-2.1			
			2440	32.6	-1.9			
			2450	33.3	-1.6			
			2460	33.2	-1.4			
			2470	33.0	-1.3			
			2480	33.6	-1.2			
			2490	34.0	-1.1			
			2500	33.7	-1.0			
			5100	38.6	0.7			
			5140	38.0	0.9			
			5180	38.6	1.2			
			5220	42.7	1.5			
			5260	40.3	1.0			
			5300	41.3	0.8			
			5340	43.4	0.6			
			5380	43.9	0.3			
			5420	44.4	0.4			
			5460	42.9	0.1			
			5500	39.1	-0.2			
			5540	38.6	-0.4			
			5580	39.7	0.3			
			5620	40.6	0.8			
			5660	41.5	1.0			
			5700	40.6	1.0			
			5740	35.5	0.3			
		5780	34.8	0.2				
		5820	31.5	-0.2				
		5850	30.3	-0.3				



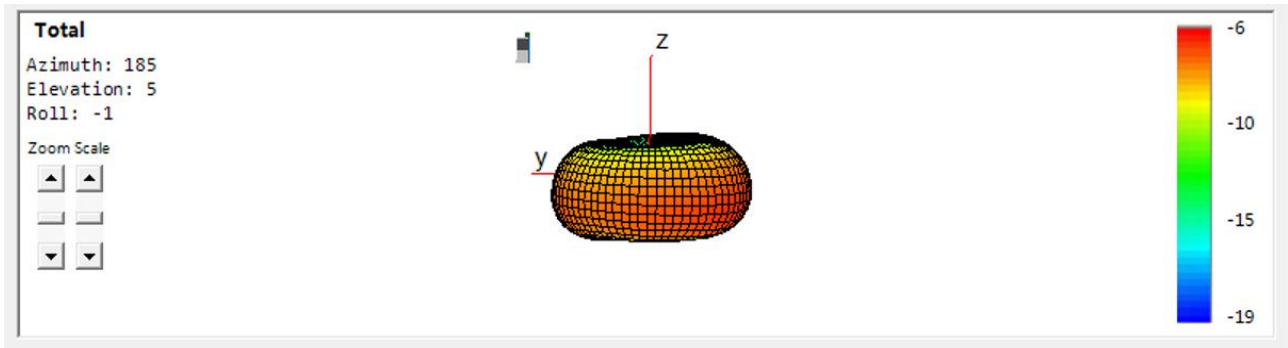
## 5. Equipment List

Type of Equipment	Manufacture	Model Number
Network Analyzer	Key sight	E5071C
Switch control System	GTS	RayZone1800
Software	GTS	MaxSign 100Patten Measurement software

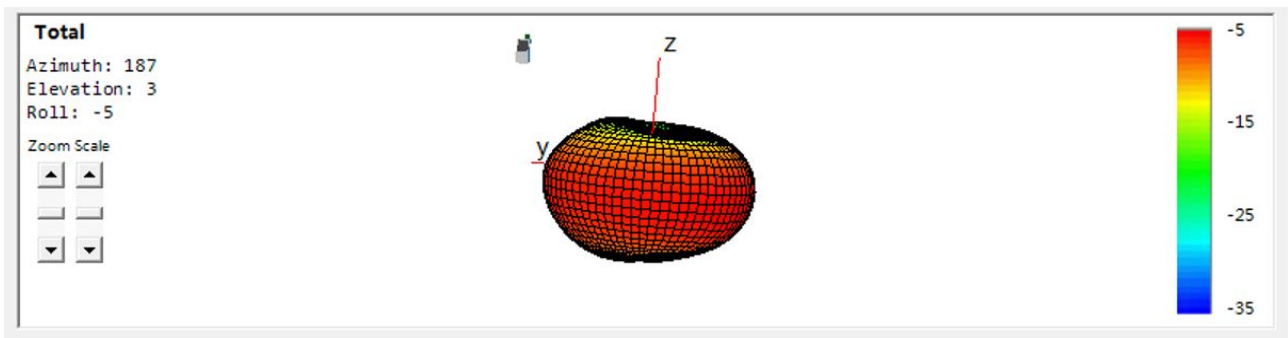
### ANNEX A 3-D Patten Plots



620MHz

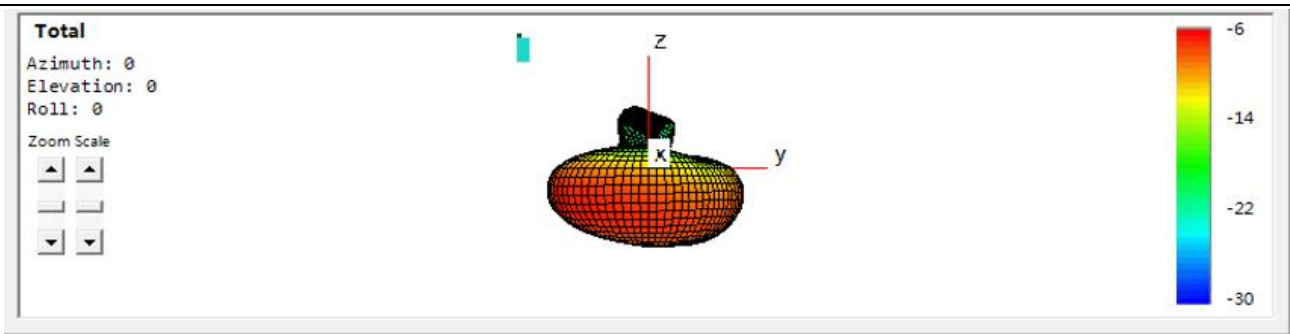


700MHz

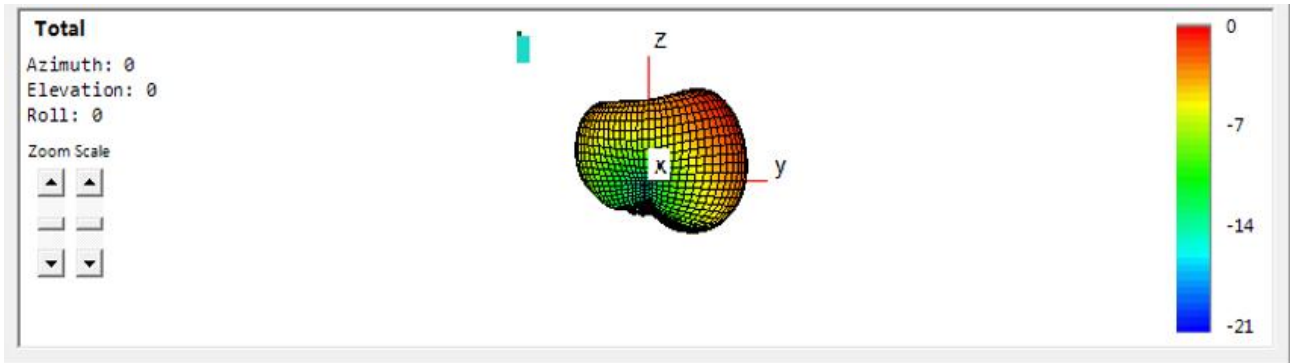


850MHz

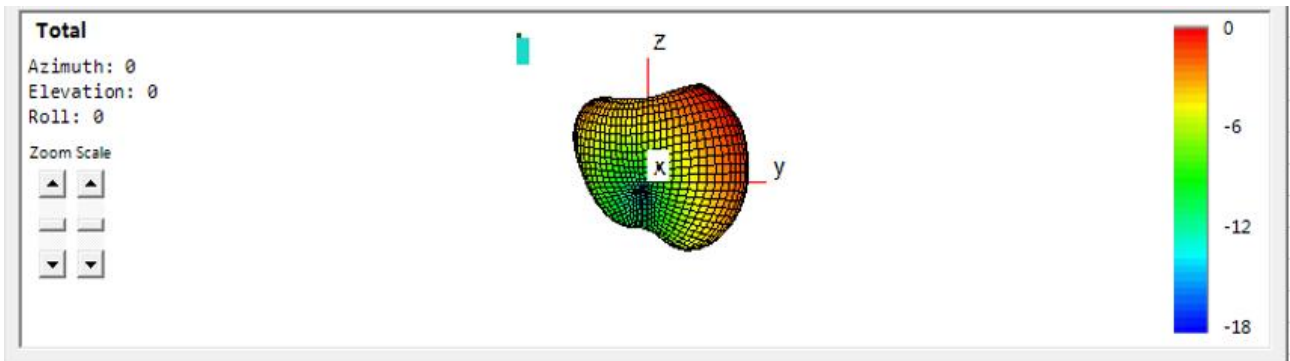




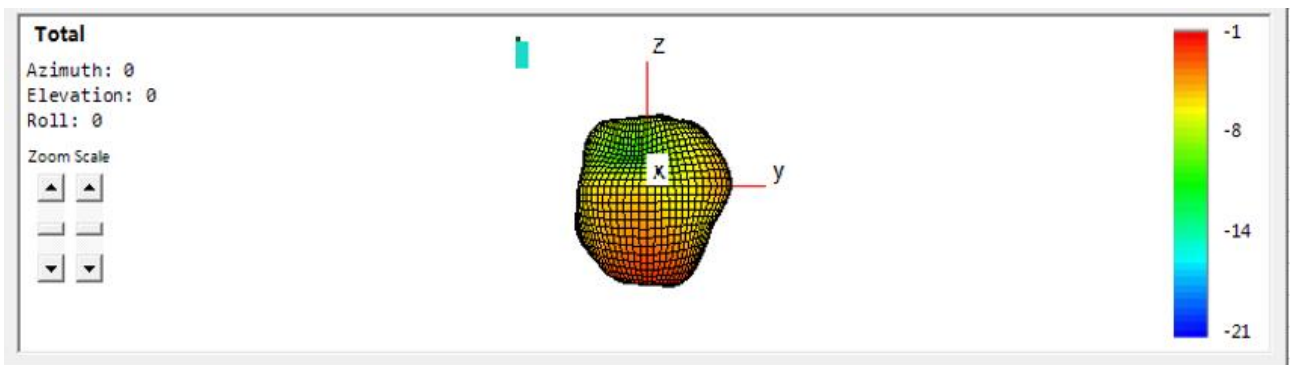
900MHz



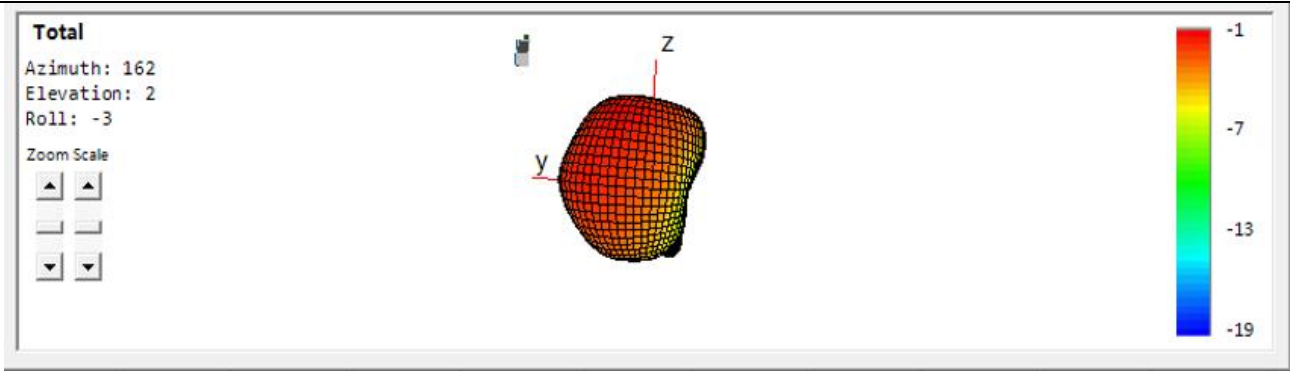
1800MHz



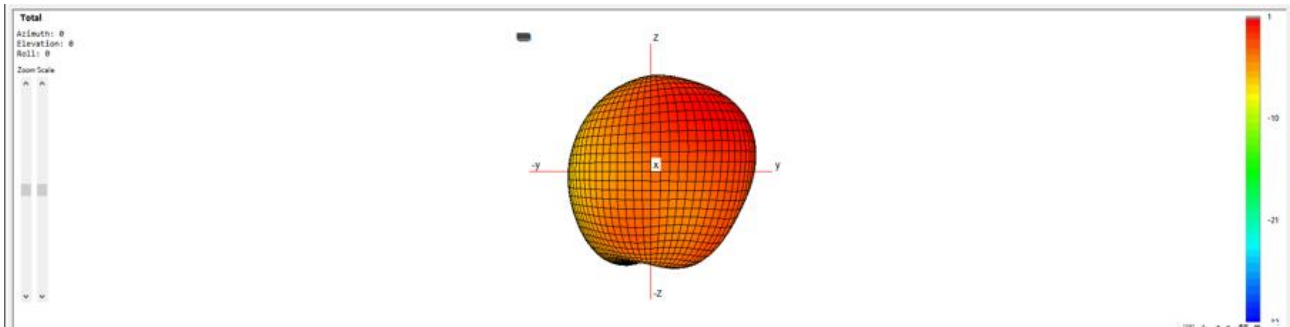
1900MHz



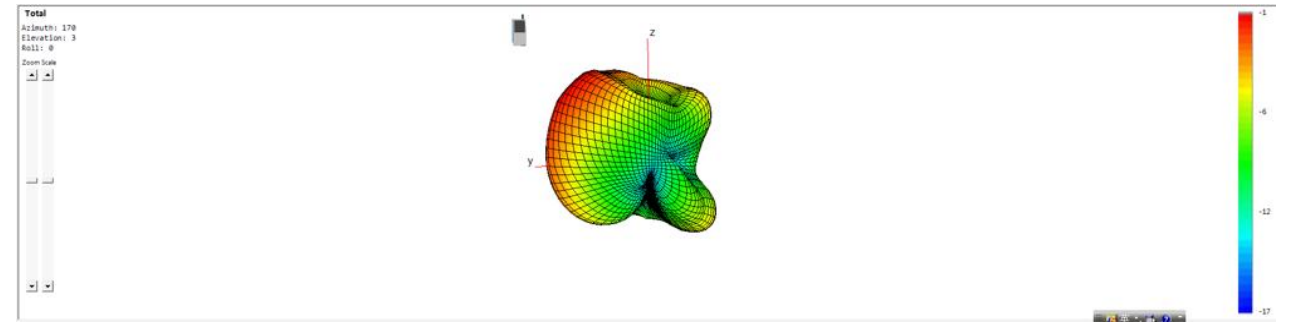
2100MHz



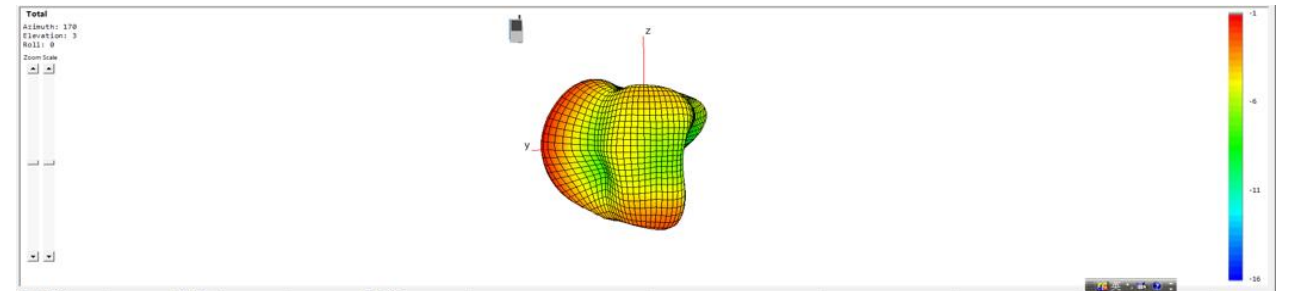
2700MHz



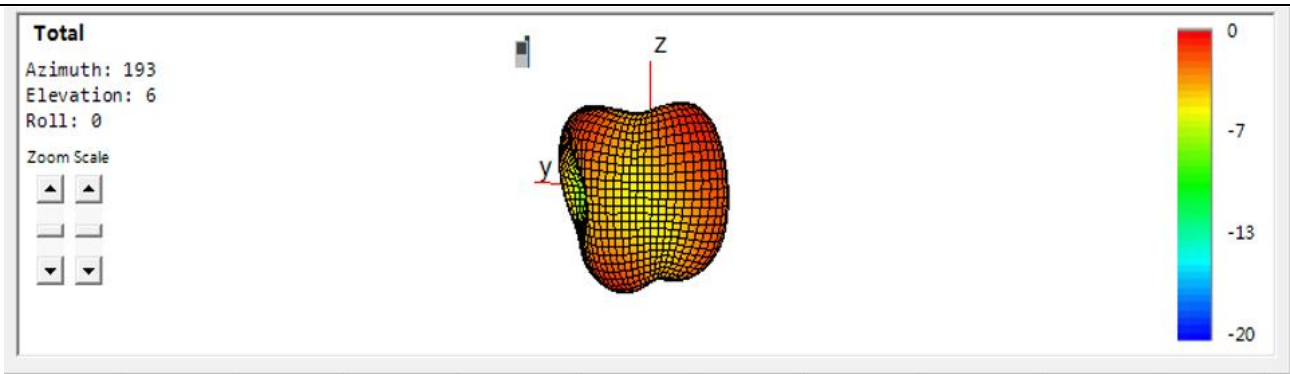
3300MHz



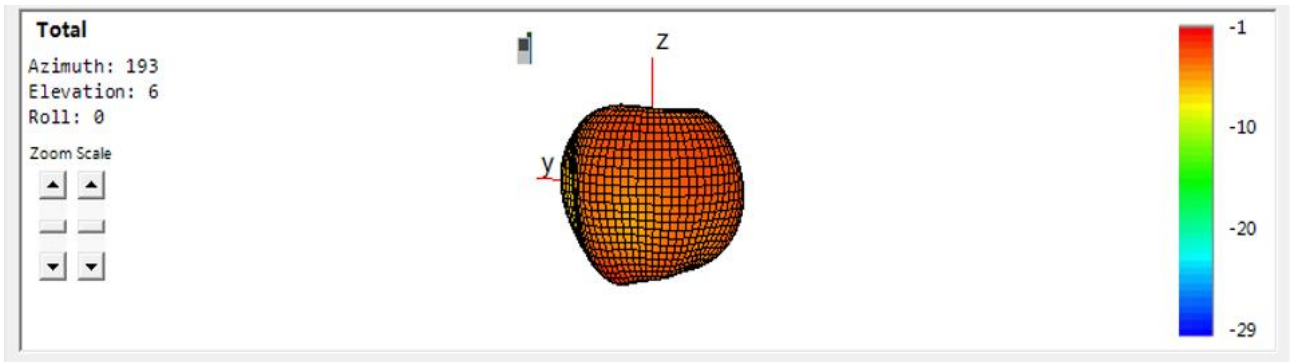
3800MHz



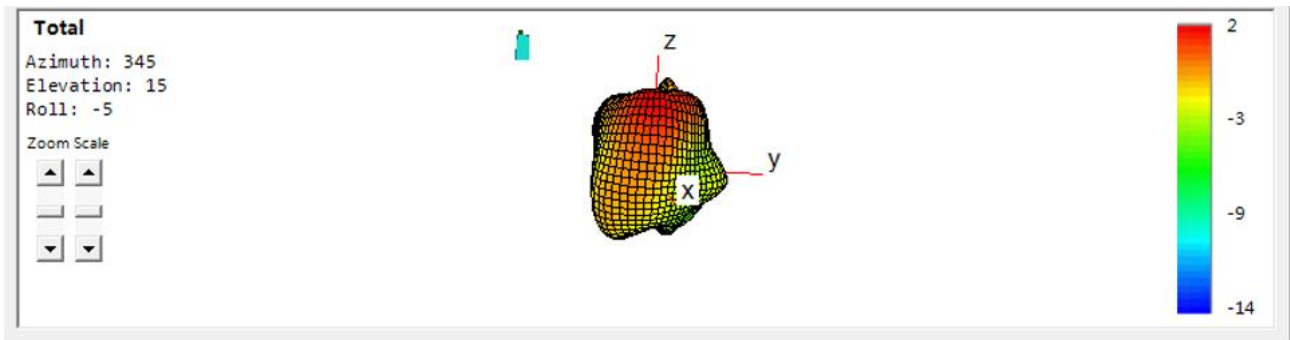
4200MHz



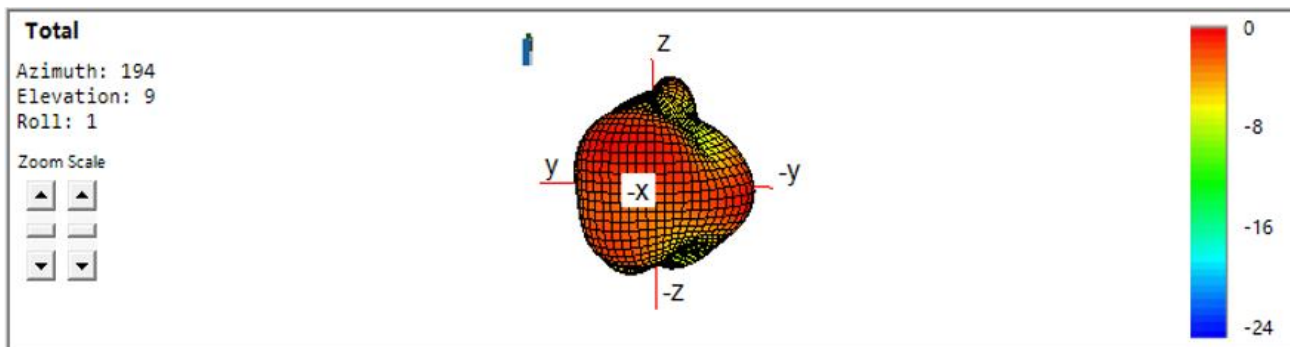
**1575MHz**



**2400MHz**



**5100MHz**

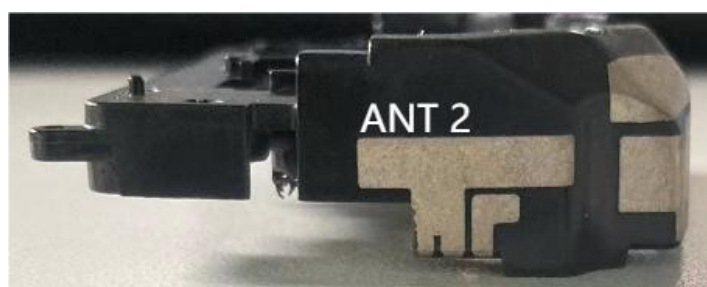


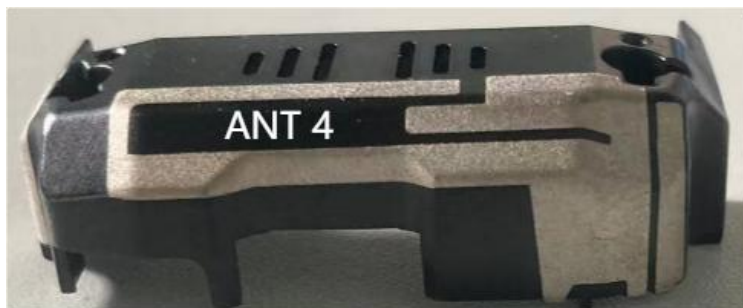
**5850MHz**

## ANNEX B: The EUT Appearance and Test Configuration

### B.1 EUT Appearance







## B.2 Test Configuration

**Shenzhen Fu Bang Wireless Technology Co., Ltd.**

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