

# OTA TEST REPORT

Applicant Shenzhen General Test System Co., Ltd

Product RayZone1800

Issue Date August 10, 2023

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: Guoqing Hu

**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℃, Max.=25℃	
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	620MHz-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**

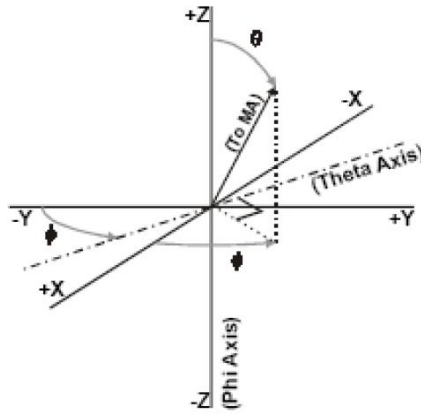
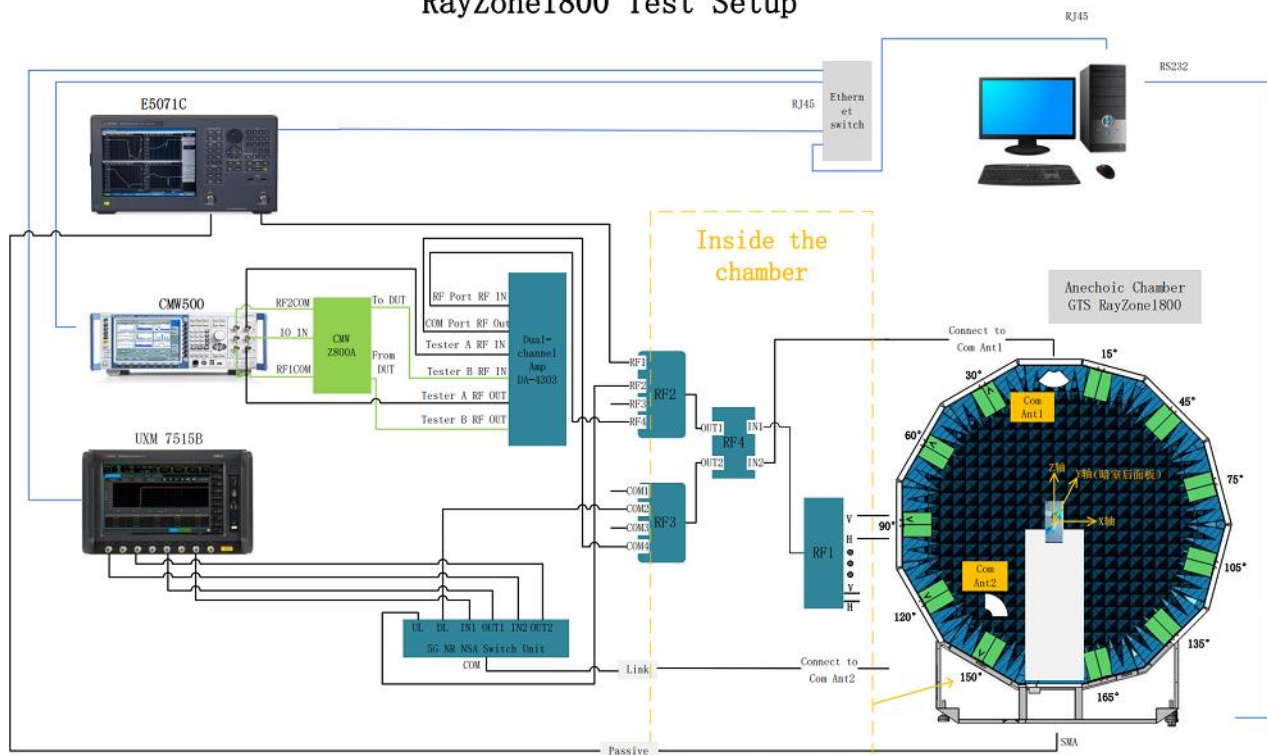


Figure 1 Test coordinate system

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

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## OTA Test Report

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space				<b>1700</b>	25.0	-1.2	
					<b>1720</b>	26.6	-1.2	
					<b>1740</b>	28.2	-1.0	
					<b>1760</b>	29.6	-1.0	
					<b>1780</b>	30.1	-1.0	
					<b>1800</b>	33.8	-0.9	
					<b>1820</b>	28.0	-1.0	
					<b>1840</b>	28.9	-1.0	
		<b>690</b>	15.3	-4.3	<b>1860</b>	28.8	-1.2	
		<b>700</b>	16.4	-4.2	<b>1880</b>	29.4	-1.5	
		<b>710</b>	16.9	-4.1	<b>1900</b>	31.6	-1.3	
		<b>720</b>	17.3	-3.9	<b>1920</b>	33.4	-1.0	
		<b>730</b>	17.5	-3.9	<b>1940</b>	33.5	-1.3	
		<b>740</b>	17.5	-3.8	<b>1960</b>	34.1	-1.5	
		<b>750</b>	17.3	-3.9	<b>1980</b>	34.4	-1.6	
		<b>760</b>	16.6	-4.0	<b>2000</b>	34.7	-1.3	
		<b>770</b>	16.5	-4.1	<b>2020</b>	34.1	-1.4	
		<b>780</b>	15.6	-4.3	<b>2040</b>	33.5	-1.4	
		<b>790</b>	15.4	-4.4	<b>2060</b>	32.3	-1.4	
		<b>800</b>	14.6	-4.6	<b>2080</b>	30.2	-1.9	
		<b>810</b>	16.4	-4.0	<b>2100</b>	28.3	-2.2	
		<b>820</b>	17.4	-3.9	<b>2120</b>	27.9	-2.2	
		<b>830</b>	18.5	-3.5	<b>2140</b>	27.1	-2.2	
		<b>840</b>	19.6	-3.3	<b>2160</b>	25.1	-2.6	
		<b>850</b>	22.5	-2.8	<b>2180</b>	23.7	-2.7	
		<b>860</b>	21.5	-3.0	<b>2200</b>	24.8	-2.3	
		<b>870</b>	19.9	-3.2	<b>2500</b>	25.1	-2.4	
		<b>880</b>	18.4	-3.5	<b>2520</b>	24.7	-2.5	
		<b>890</b>	18.2	-3.6	<b>2540</b>	25.1	-2.4	
		<b>900</b>	17.1	-4.1	<b>2560</b>	25.7	-2.3	
		<b>910</b>	22.1	-2.8	<b>2580</b>	25.1	-2.3	
		<b>920</b>	23.7	-2.6	<b>2600</b>	24.6	-2.1	
		<b>930</b>	24.7	-2.4	<b>2620</b>	25.4	-1.5	
		<b>940</b>	24.5	-2.4	<b>2640</b>	26.4	-1.5	
		<b>950</b>	22.0	-2.8	<b>2660</b>	26.1	-1.5	
		<b>960</b>	21.6	-3.0	<b>2680</b>	26.3	-1.3	
					<b>2700</b>	26.6	-0.8	

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	1550	35.2	-1.3	5640	47.0	2.0	
		1560	36.1	-1.2	5680	43.9	1.7	
		1570	36.3	-1.1	5720	47.8	2.1	
		1580	36.5	-1.0	5760	45.8	1.8	
		1590	35.2	-1.3	5800	47.1	1.7	
		1600	33.2	-1.4				
		2400	32.2	0.3				
		2410	33.1	0.6				
		2420	34.1	0.9				
		2430	35.7	1.2				
		2440	36.6	1.4				
		2450	37.3	1.4				
		2460	37.6	1.2				
		2470	38.1	1.1				
		2480	37.8	1.0				
		2500	37.7	0.8				
		5100	34.7	0.4				
		5140	35.7	0.6				
		5180	35.5	0.6				
		5220	38.3	0.9				
		5260	38.7	1.0				
		5300	38.6	1.0				
		5340	44.1	1.6				
		5400	39.7	1.2				
		5440	44.5	1.7				
		5600	44.8	1.8				

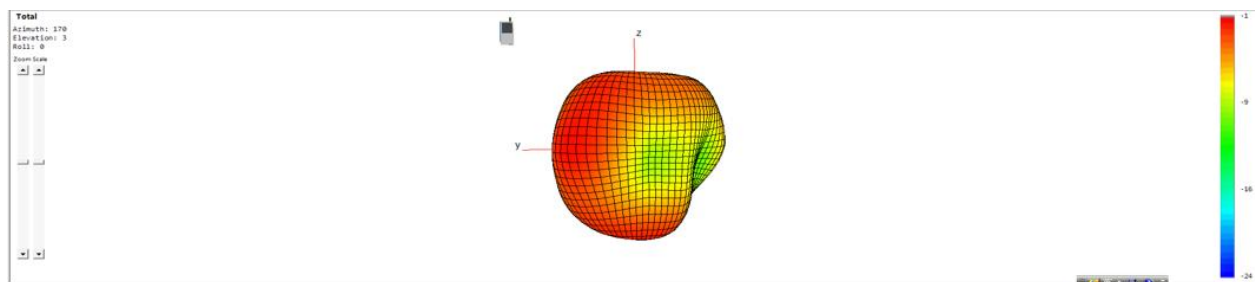
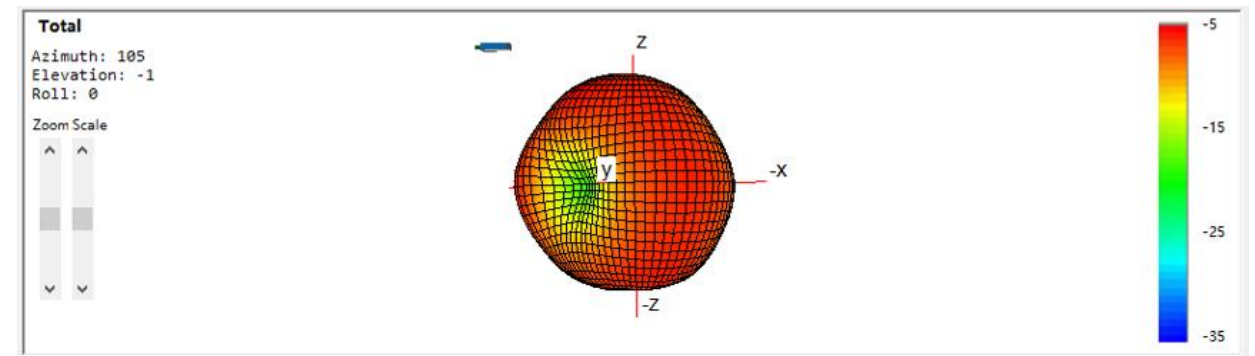
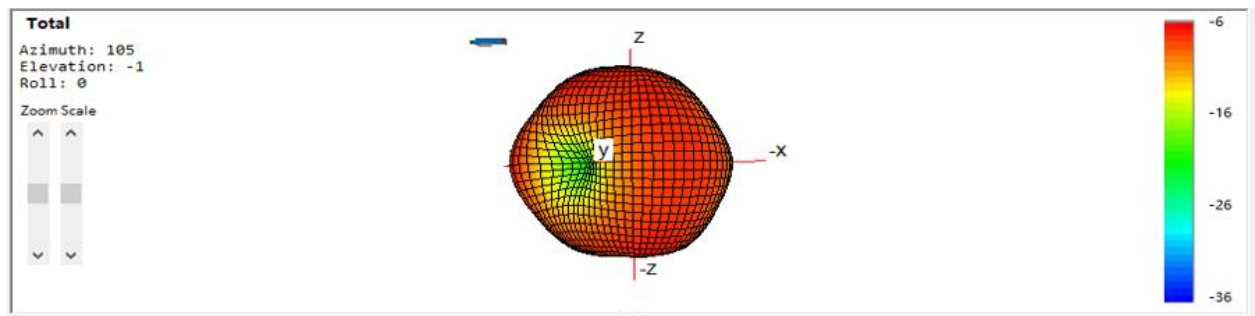
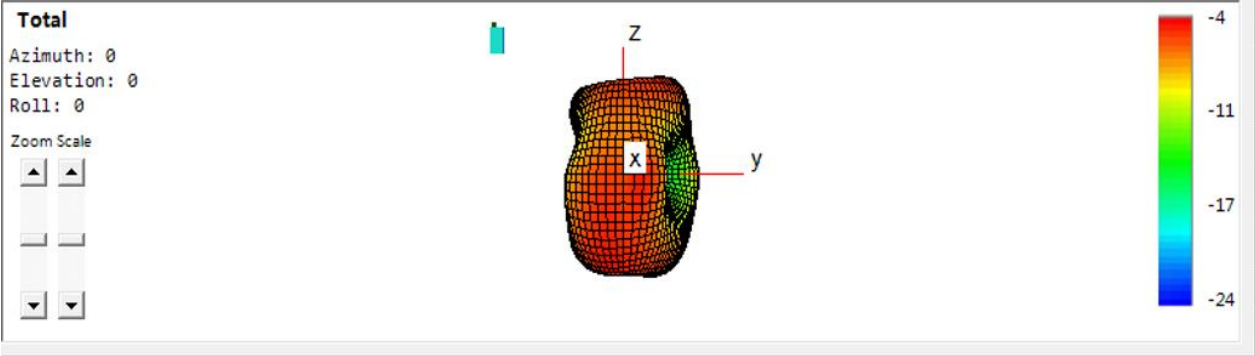
## 5. Equipment List

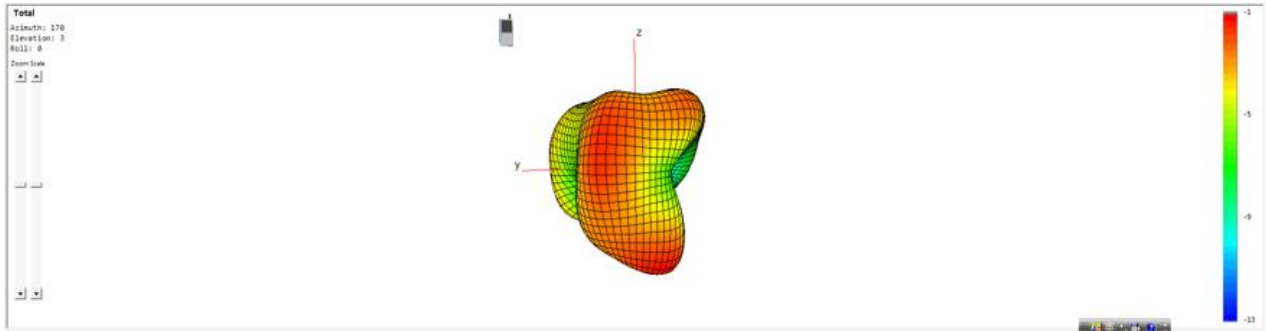
Type of Equipment	Manufacture	Model Number
Network Analyzer	Key sight	E5071C
Switch control System	GTS	RayZone1800
Software	GTS	MaxSign 100 Patten Measurement software

## ANNEX A 3-D Patten Plots

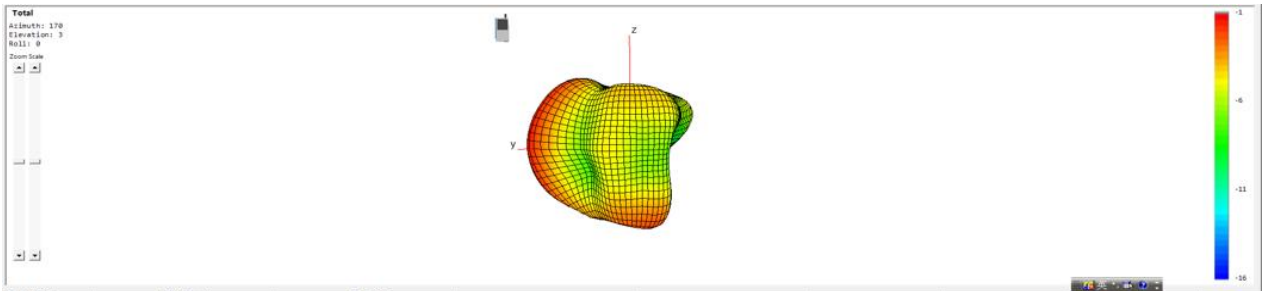
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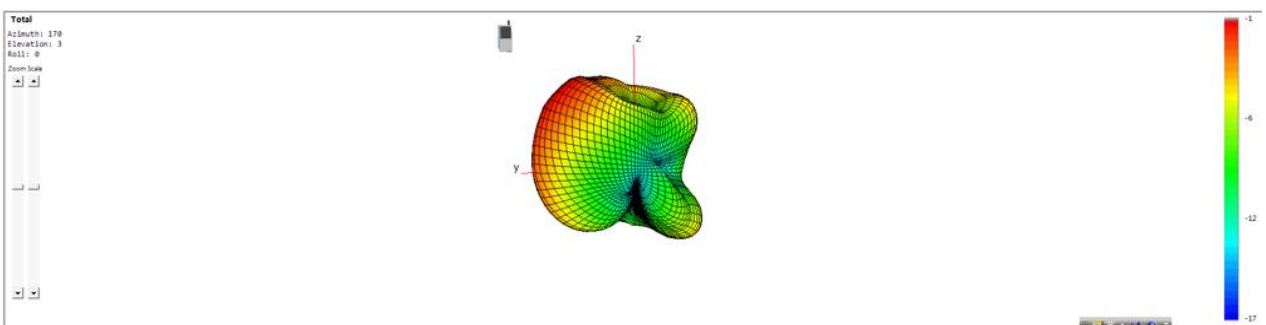




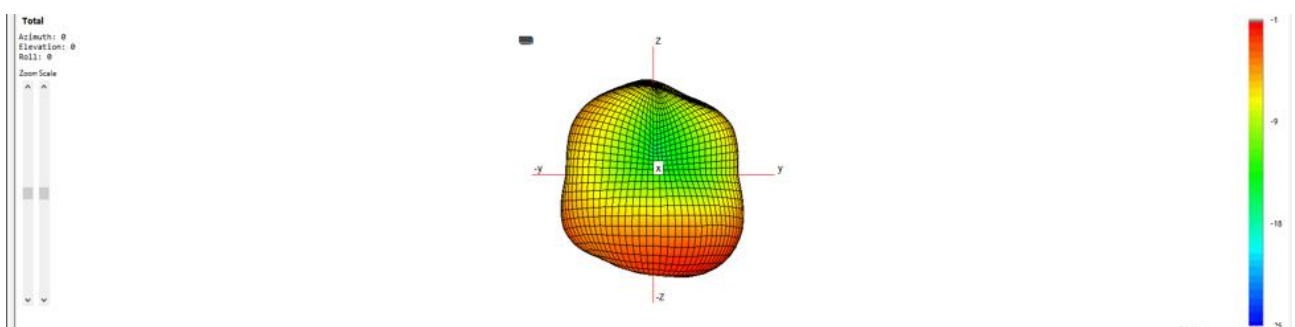
**1900MHz**



**2100MHz**

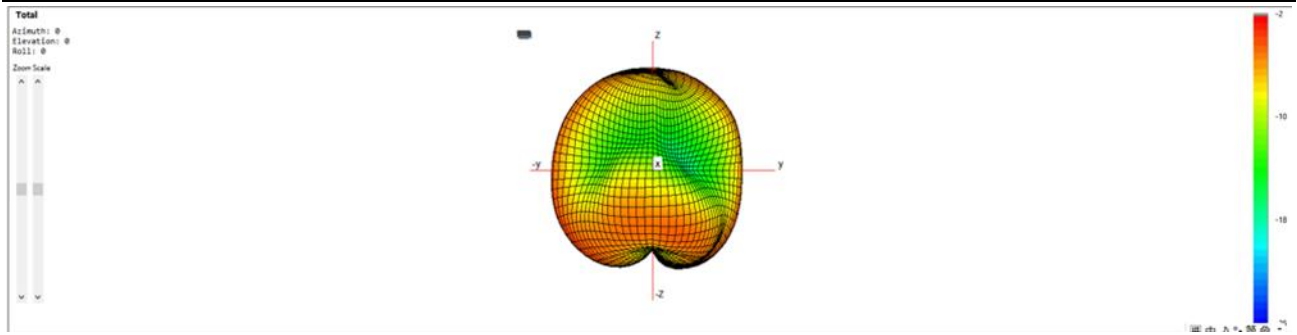


**2700MHz**

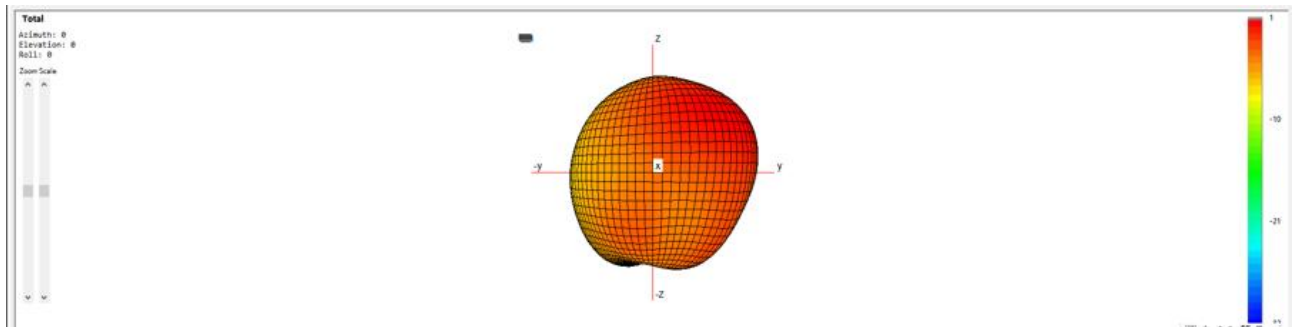


**1575MHz**





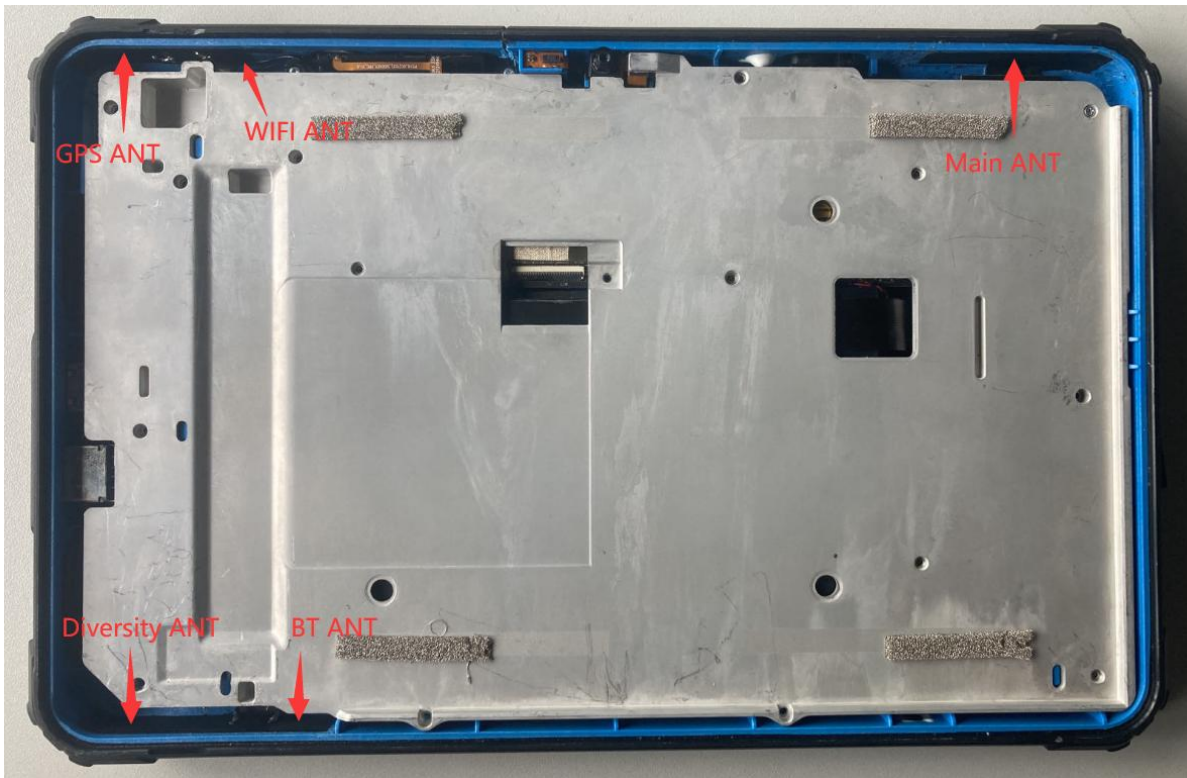
**2400MHz**

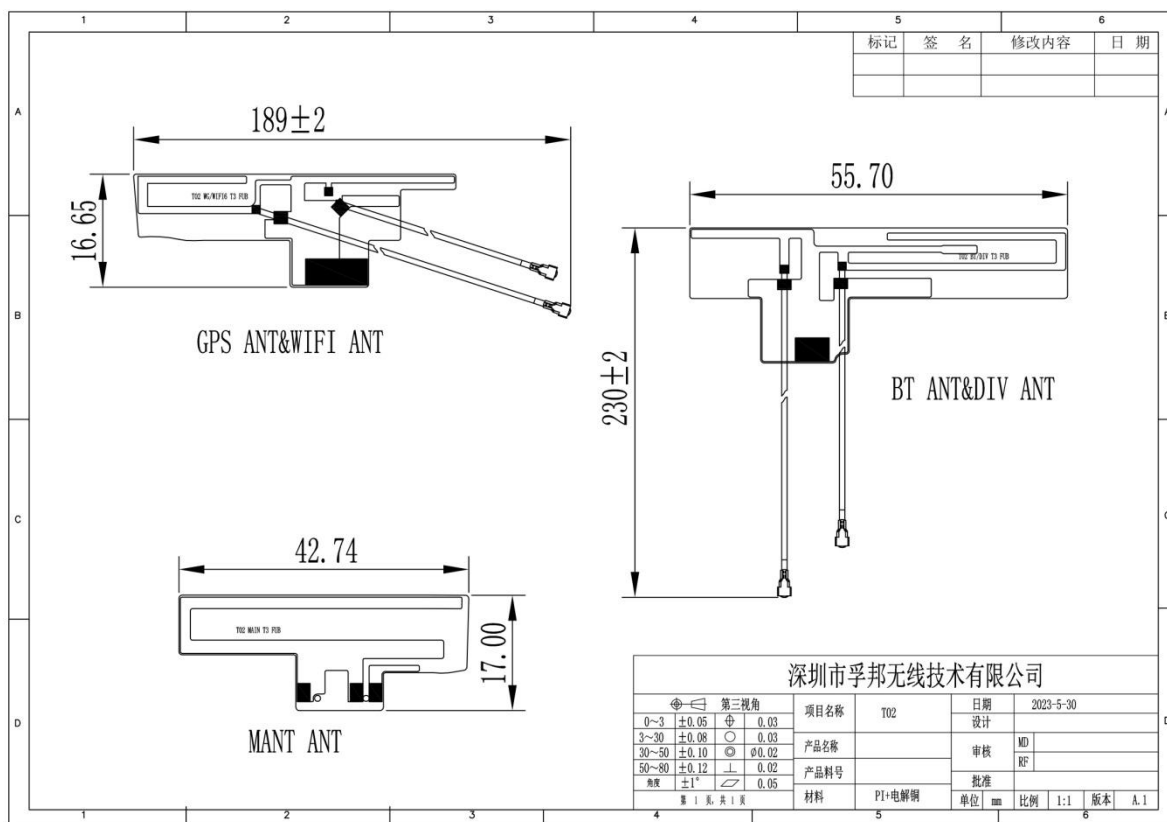


**5100MHz**

## ANNEX B: The EUT Appearance and Test Configuration

### B.1 EUT Appearance





## B.2 Test Configuration

