

# OTA TEST REPORT

©

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

**Product** RayZone1800

**Issue Date** September 6, 2022

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: li song lin

Approved by: xu fu

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

*Room 302, lianjian Industry Part, 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 SAN HAO Wireless Technology Co., Ltd

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

Contact: LI song lin

Telephone: 13686856980

E-mail: 1379452507@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	700MHz-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

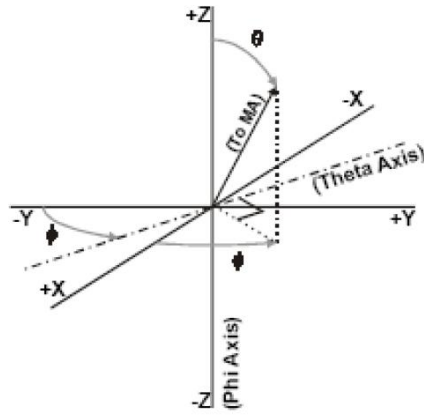
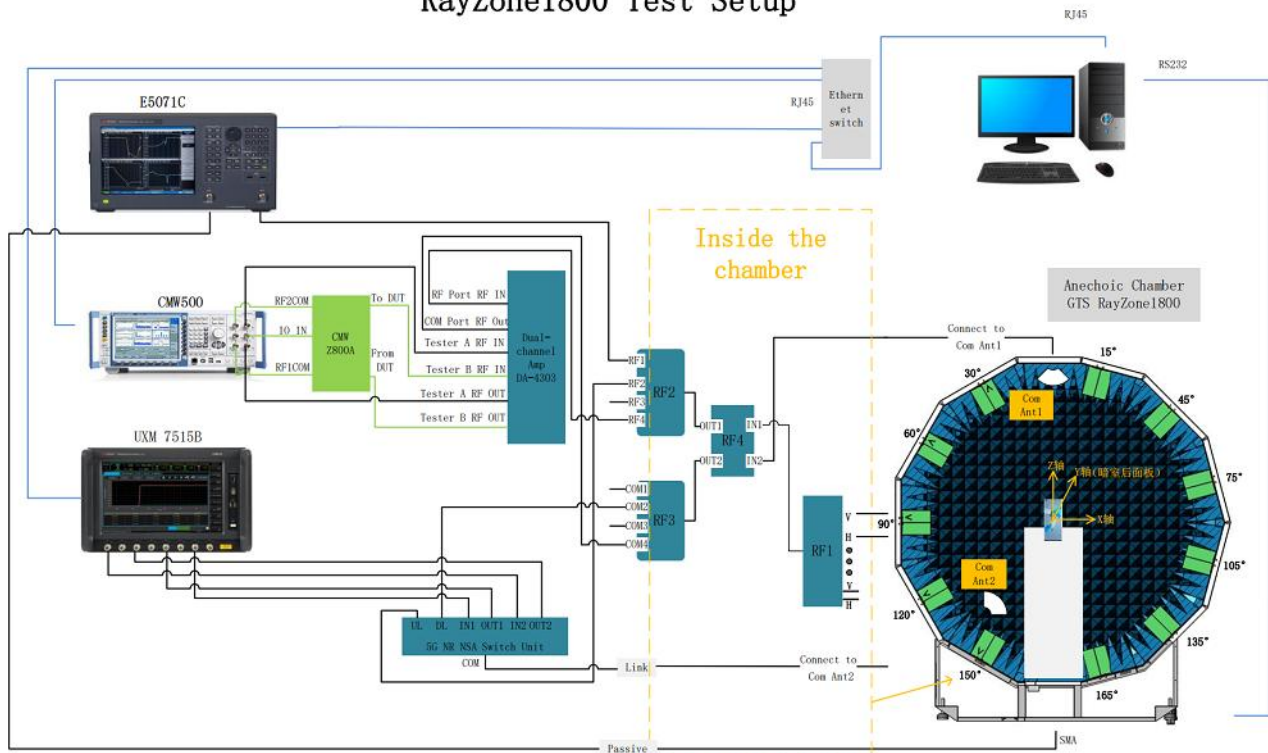


Figure 1 Test coordinate system

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	700	13.15	-4.85	1900	43.71	0.01		
		710	19.73	-3.21	1920	42.46	-0.28		
		720	21.06	-3.38	1940	40.54	-0.55		
		730	21.24	-3.2	1960	39.08	-0.83		
		740	20.98	-3.7	1980	35.84	-1.22		
		750	20.93	-3.5	2000	35.68	-1.32		
		760	19.3	-3.96	2020	33.43	-1.46		
		770	14.33	-5.31	2040	31.63	-1.65		
		780	13.22	-5.73	2060	31.2	-1.63		
		790	15.06	-5.29	2080	30.51	-1.74		
		800	24.04	-3.72	2100	30.13	-1.72		
		810	30.51	-2.81	2120	30.08	-1.72		
		820	33.06	-2.53	2140	27.87	-2.05		
		830	32.44	-2.56	2160	27.73	-2.1		
		840	30.4	-2.7	2180	28.48	-2.02		
		850	28.04	-2.74	2200	29.52	-1.89		
		860	27.59	-2.5	2500	30.87	-1.43		
		870	29.17	-1.65	2520	30.24	-1.44		
		880	33.27	-0.7	2540	28.79	-1.42		
		890	39.12	0.29	2560	27.98	-1.62		
		900	44.42	0.85	2580	27.62	-1.69		
		910	47.11	1.1	2600	22.7	-2.79		
		920	48.93	1.22	2620	21.62	-2.85		
		930	45.4	0.71	2640	22.01	-2.41		
		940	40.19	-0.06	2660	22.48	-2.1		
		950	36.25	-0.77	2680	21.27	-2		
		960	28.51	-1.63	2700	20.34	-2.15		
			1700	32.26	-0.29				
			1720	34.98	-0.24				
			1740	40.03	0.28				
			1760	41.61	0.17				
			1780	41.85	0.07				
			1800	42.65	-0.02				
		1820	44.58	0.22					
		1840	46.8	0.49					
		1860	48.08	0.53					
		1880	45.96	0.13					

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	1550	21.06	-2.49	5100	41.41	0.89	
		1560	21.78	-2.32	5140	41.68	0.95	
		1570	22.55	-2.11	5180	40.87	0.91	
		1580	23.18	-1.87	5220	39.96	0.84	
		1590	23.95	-1.78	5260	40.14	0.88	
		1600	24.21	-1.81	5300	39.59	0.66	
					5340	39.37	0.81	
					5380	41.41	0.67	
					5420	41.68	0.58	
		2400	35.61	-0.77	5460	36.49	0.22	
		2410	36.4	-0.7	5500	33.81	-0.08	
		2420	36.05	-0.64	5540	31.85	-0.41	
		2430	36.17	-0.52	5580	30.29	-0.93	
		2440	38.06	-0.16	5620	27.7	-1.08	
		2450	39.15	0.02	5660	27.53	-1.21	
		2460	39.23	0.01	5700	27.83	-1.87	
		2470	37.85	-0.21	5740	25.93	-1.88	
		2480	37.82	-0.28	5780	26.14	-2.03	
		2490	38.94	-0.21	5820	26.54	-2.33	
		2500	39.01	-0.18	5860	25.54	0.95	
					6000	40.92	0.77	
	Note: WIFI and BT share an antenna							

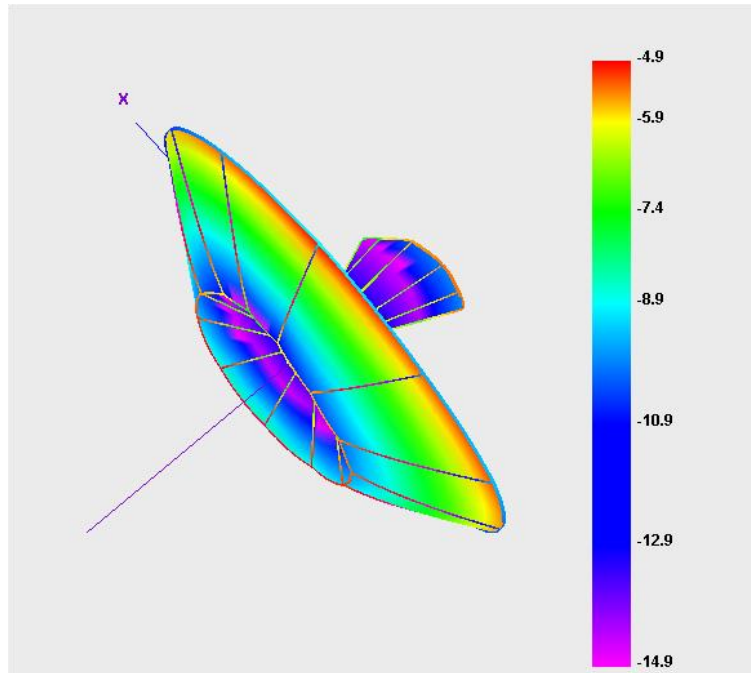
## 5. Equipment List

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

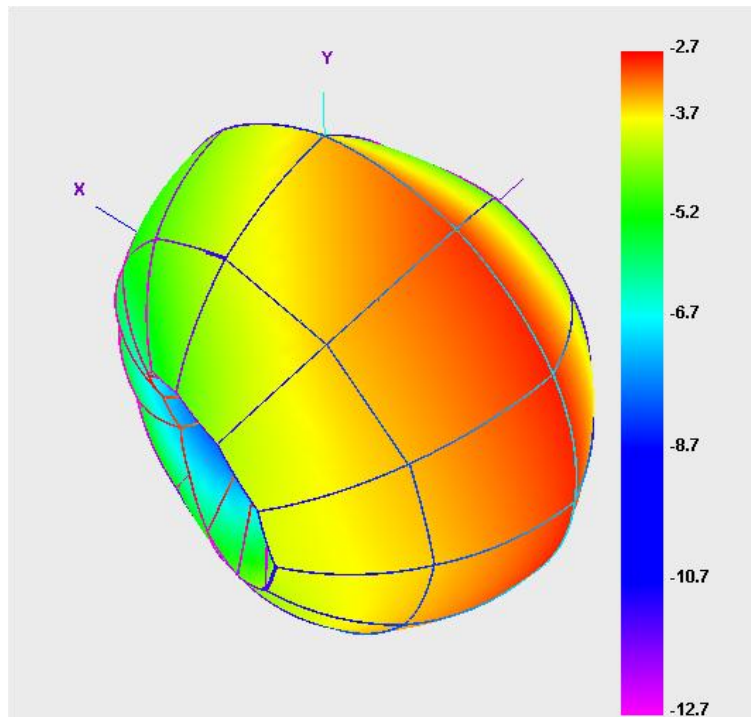
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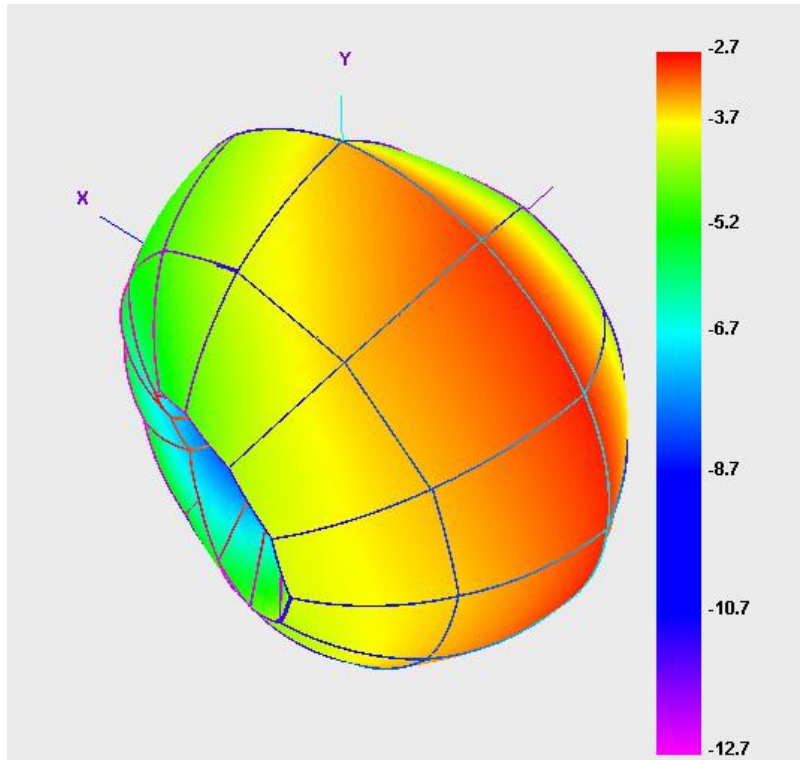
## ANNEX A 3-D Patten Plots



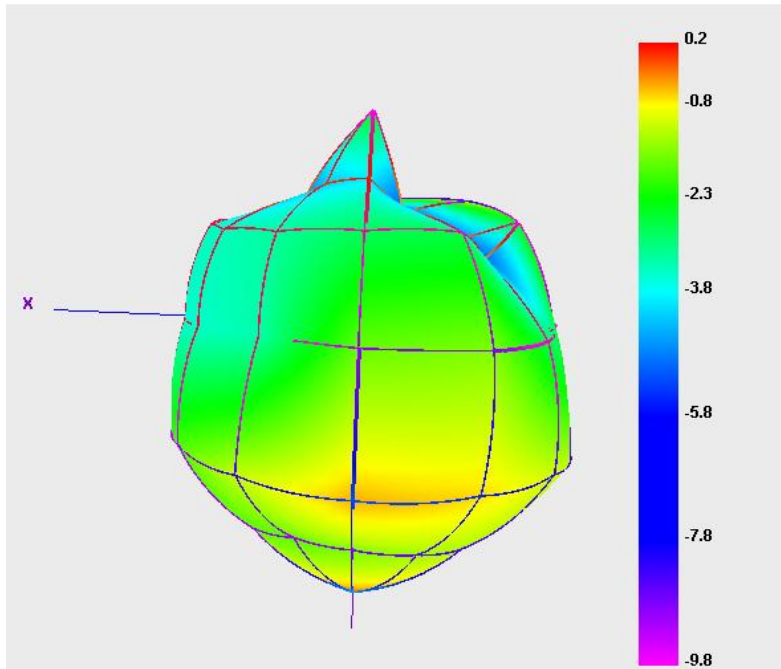
700MHz



850MHz

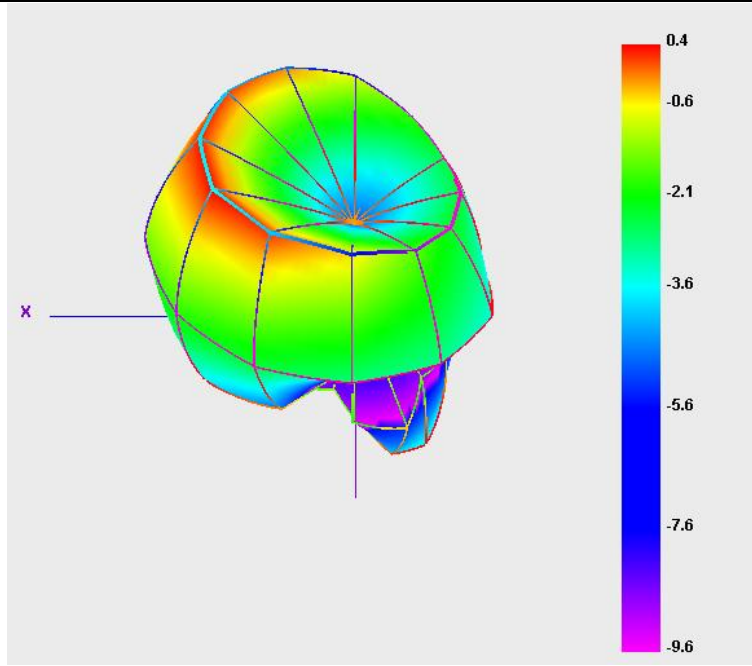


900MHz

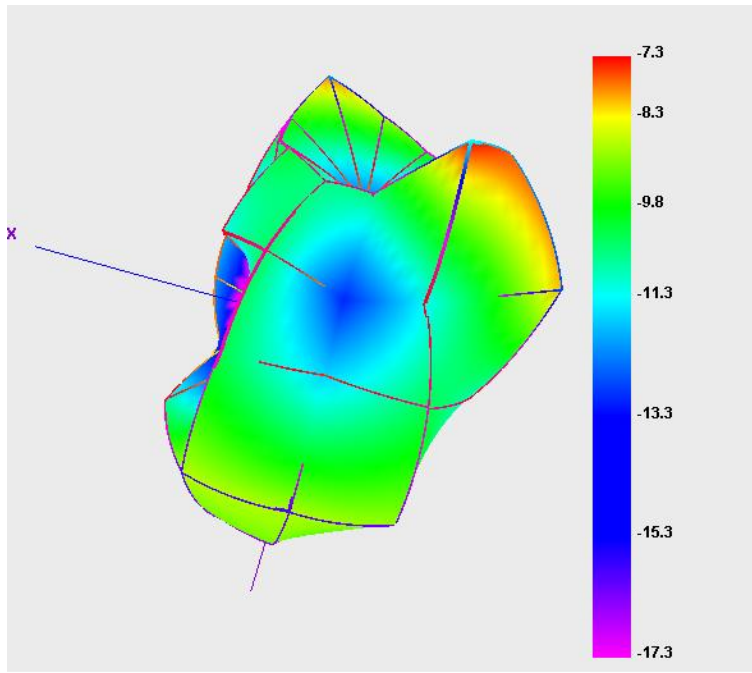


1800MHz

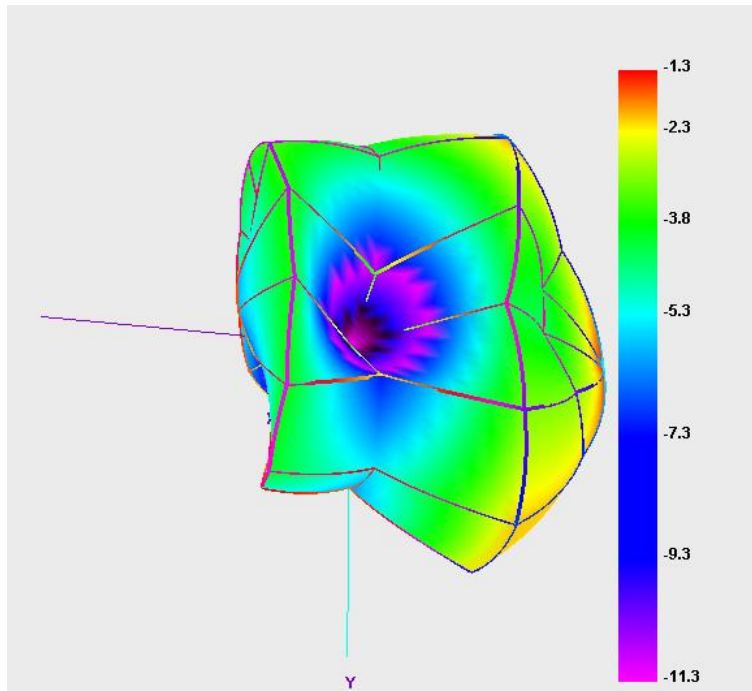




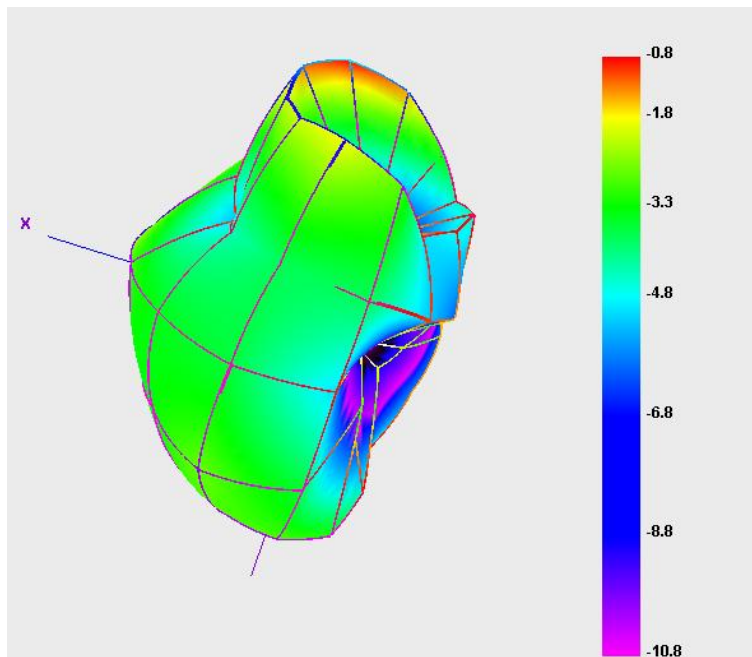
2200MHz



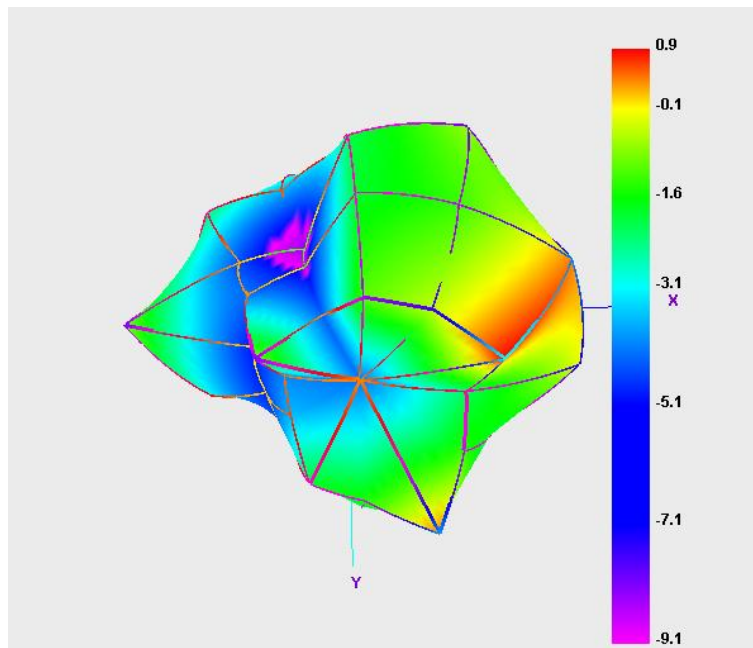
2700MHz



1575MHz



2400MHz



**5100MHz**

## **ANNEX B: The EUT Appearance and Test Configuration**

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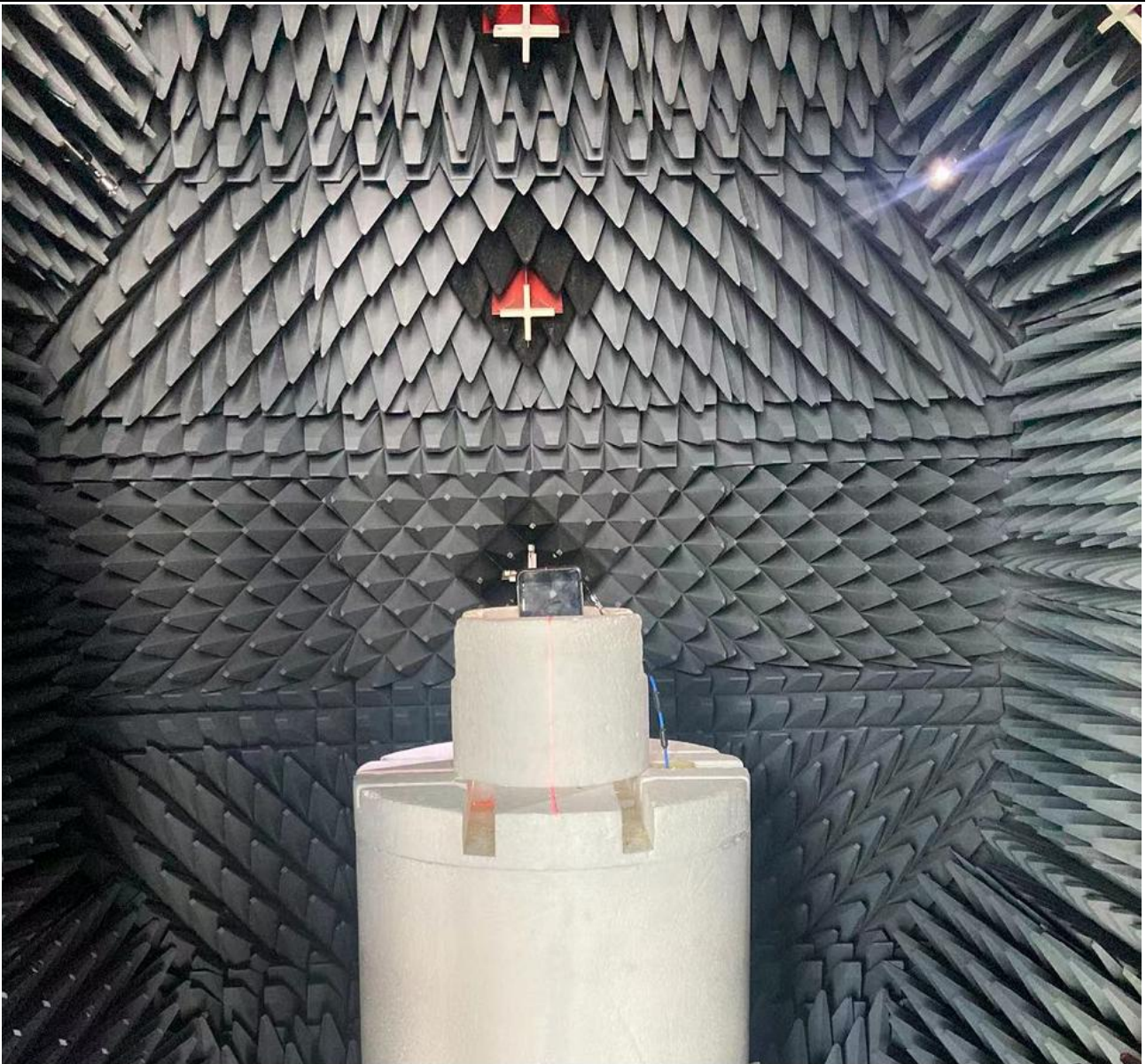
## B.1 EUT Appearance



## B.2 Test Configuration

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## 1.1 项目基本信息

Type	Mobile phone
Antenna Material	FPC
RF Function	NFC
Frequency	13.56Mhz

## 1.2 NFC Antenna photo



