

OTA TEST REPORT

Applicant Shenzhen General Test System Co., Ltd

Product RayZone1800

Issue Date November 7, 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: RuiJieXie

Approved by: CanZhenChen

Shenzhen Fu Bang Wireless Technology Co., Ltd.

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

1. Test Laboratory

Shenzhen Fu Bang Wireless Technology Co., Ltd.

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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: RuijieXie

Telephone: 13259980153

E-mail: 1822707889@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

Shenzhen Fu Bang Wireless Technology Co., Ltd.

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

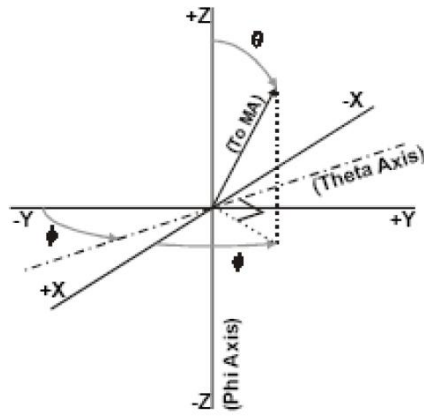
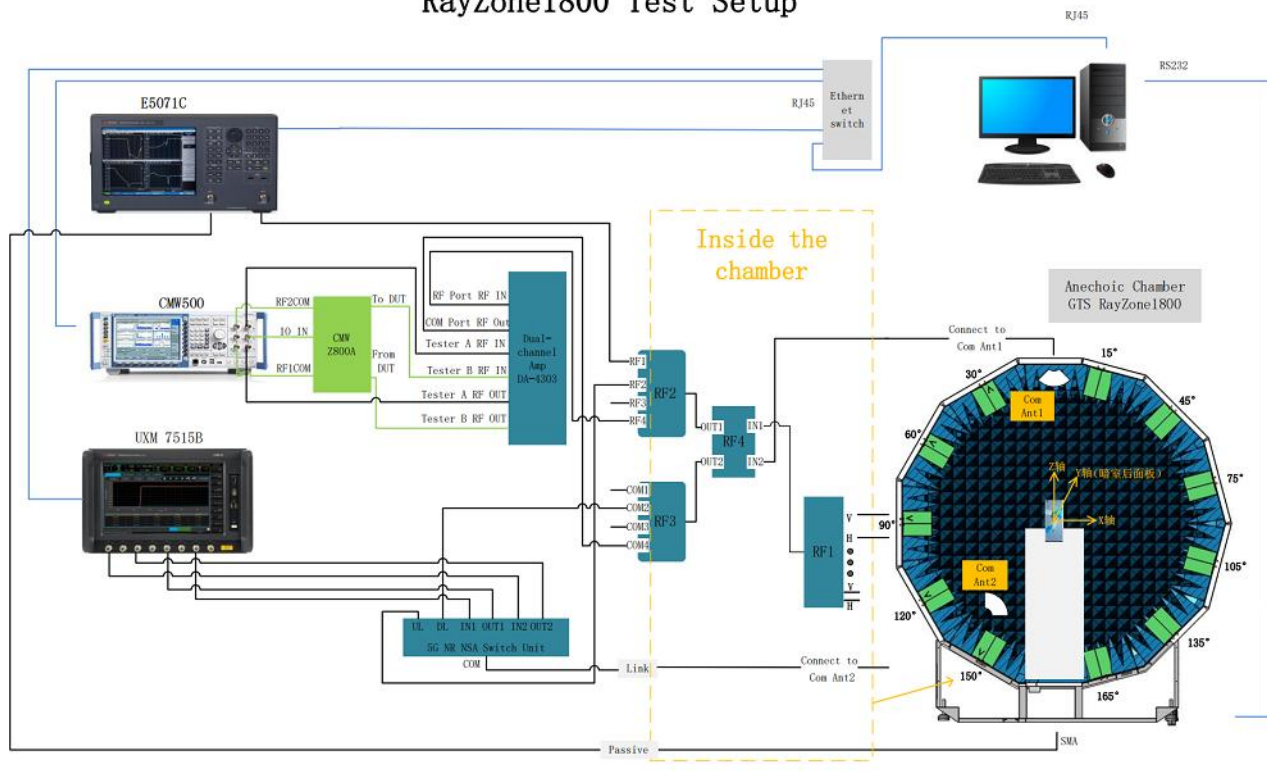


Figure 1 Test coordinate system

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

Shenzhen Fu Bang Wireless Technology Co., Ltd.

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4.1 Gain and Efficiency

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	620	11.61	-5.9	1820	23.8	-0.74	
		630	12.37	-5.6	1840	25.1	-1.12	
		640	13.52	-5.1	1860	27.1	-0.82	
		650	14.54	-4.5	1880	28.8	-0.46	
		660	15.27	-4.2	1900	30.0	-0.08	
		670	15.32	-4.2	1920	31.8	0.22	
		680	15.47	-4.0	1940	32.1	0.48	
		690	15.22	-4.1	1960	31.8	0.74	
		700	13.56	-4.9	1980	30.4	0.8	
		710	15.05	-4.4	2000	30.1	0.9	
		720	15.85	-4.2	2020	29.2	0.91	
		730	15.12	-4.4	2040	27.3	0.47	
		740	13.56	-4.8	2060	25.1	-0.43	
		750	11.78	-5.4	2080	24.6	-1.41	
		760	9.62	-6.1	2100	23.9	-2.37	
		770	7.9	-7.1	2120	23.8	-2.76	
		780	6.78	-7.6	2140	24.3	-3.23	
		790	5.52	-8.4	2160	23.3	-3.78	
		800	10.82	-5.31	2180	21.8	-3.89	
		810	13.14	-4.5	2200	20.4	-4.12	
		820	15.47	-3.8	2300	18.7	-4.39	
		830	17.28	-3.5	2320	18.7	-4.38	
		840	17.54	-3.4	2340	19.9	-4.63	
		850	16.85	-3.7	2360	20.5	-4.6	
		860	15.47	-4.2	2380	21.0	-4.89	
		870	13.73	-4.7	2400	21.4	-4.82	
		880	13.8	-3.6	2420	23.0	-4.16	
		890	16.6	-3.0	2440	24.1	-3.72	
		900	18.5	-2.4	2460	24.2	-3.71	
		910	19.6	-2.2	2480	26.3	-3.72	
		920	20.0	-2.1	2500	28.5	-1.16	
		930	19.5	-2.1	2520	29.3	-0.89	
		940	18.4	-2.3	2540	30.2	-0.79	
		950	16.8	-2.6	2560	31.3	-0.77	
		960	15.1	-2.9	2580	31.9	-0.35	
		1700	19.74	-2.73	2600	32.0	-0.31	
		1720	21.88	-1.78	2620	32.3	-0.08	
		1740	21.38	-1.62	2640	31.1	0.05	
		1760	21.96	-1.32	2660	29.2	0.33	
		1780	23.83	-1.01	2680	26.8	0.33	
		1800	26.01	-0.74	2700	26.1	0.29	

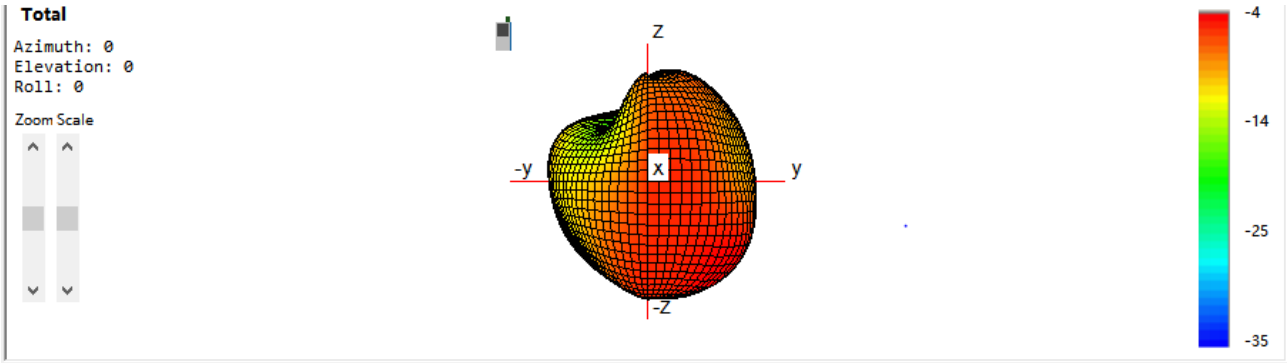
Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	3300	25.0	-1.2	4530	23.0	-1.8	
		3330	27.9	-1.1	4560	22.8	-1.9	
		3360	29.3	-0.8	4590	22.1	-2.3	
		3390	29.0	-0.7	4620	22.4	-2.4	
		3420	28.0	-1.3	4650	21.3	-3.1	
		3450	28.2	-1.2	4680	20.4	-3.5	
		3480	28.1	-1.4	4710	20.9	-2.6	
		3510	26.2	-1.9	4740	20.4	-2.0	
		3540	26.6	-1.7	4770	21.3	-1.1	
		3570	28.6	-1.3	4800	21.7	-0.4	
		3600	28.5	-1.0	4830	21.7	-0.1	
		3630	28.7	-1.4	4860	23.3	0.3	
		3660	28.5	-1.5	4890	23.2	0.3	
		3690	30.7	-1.0	4920	22.4	0.0	
		3720	30.2	-0.8	4950	21.9	-0.4	
		3750	31.4	-0.9	4980	22.2	-0.7	
		3780	33.6	-0.6	5000	22.7	-1.2	
		3810	34.9	-0.4				
		3840	35.1	-1.0				
		3870	33.6	-0.8				
		3900	33.2	-0.7				
		3930	32.5	-1.0				
		3960	32.8	-1.2				
		3990	31.1	-1.6				
		4020	29.0	-1.8				
		4050	29.2	-1.6				
		4080	28.2	-1.8				
		4110	28.3	-1.7				
		4140	27.9	-1.6				
		4170	28.1	-1.5				
		4200	29.0	-1.3				
		4230	27.5	-1.2				
		4260	26.2	-1.1				
		4290	27.5	-1.0				
		4320	26.1	-1.7				
		4350	24.9	-2.0				
		4380	25.3	-1.9				
		4410	25.5	-1.7				
		4440	25.6	-1.9				
		4470	24.2	-1.9				
		4500	22.6	-2.0				

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	1560	34.9	-1.6	5900	30.5	0.9	
		1570	35.8	-1.4	5940	31.2	0.7	
		1580	35.4	-1.2	5980	31.0	0.8	
		1590	35.8	-1.5	6020	28.4	0.6	
					6060	29.3	1.0	
		2400	26.0	-0.6	6100	29.8	1.4	
		2410	27.7	-1.2	6140	30.6	1.6	
		2420	29.9	-1.7	6180	29.8	1.2	
		2430	33.4	-2.1	6220	28.6	1.4	
		2440	35.8	-1.9	6260	24.9	0.4	
		2450	37.7	-1.6	6300	24.3	0.3	
		2460	38.7	-1.4	6340	21.2	-0.6	
		2470	39.6	-1.3	6380	21.9	-0.3	
		2480	40.4	-1.2	6420	20.8	-0.5	
		2490	40.5	-1.1	6460	19.2	-0.8	
		2500	40.6	-1.0	6500	19.5	-0.8	
		5100	21.6	0.7	6540	18.8	-1.0	
		5140	21.9	0.9	6580	19.3	-1.4	
		5180	24.0	1.2	6620	19.8	-1.0	
		5220	27.2	1.5	6660	19.0	-1.2	
		5260	27.5	1.0	6700	20.5	-0.7	
		5300	28.6	0.8	6740	21.1	-0.6	
		5340	30.1	0.6	6780	21.2	-0.6	
		5380	30.8	0.3	6820	20.8	-0.8	
		5420	32.3	0.4	6860	22.0	-0.6	
		5460	33.4	0.1	6900	23.3	-0.7	
		5500	35.0	-0.2	6940	23.7	-0.7	
		5540	39.5	-0.4	6980	23.5	-0.8	
		5580	42.0	0.3	7020	24.4	-0.9	
		5620	40.9	0.8	7060	23.7	-0.9	
		5660	40.0	1.0	7100	22.5	-1.3	
		5700	37.8	1.0	7140	22.0	-1.9	
		5740	32.7	0.3	7180	22.7	-2.1	
		5780	33.5	0.2	7200	21.8	-2.2	
		5820	31.2	-0.2				
		5860	33.0	-0.3				

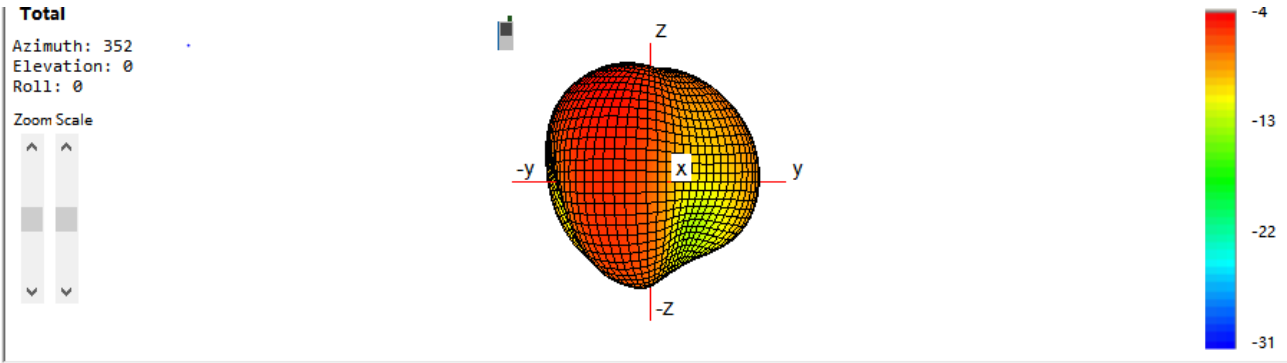
5. Equipment List

Type of Equipment	Manufacture	Model Number
Network Analyzer	Key sight	E5071C
Switch control System	GTS	RayZone1800
Software	GTS	MaxSign 100 Patten Measurement software
Radio Communication Tester	Rohde&Schwarz	CMW 500
	Anritsu	MT8000A
	Agilent	E4438C

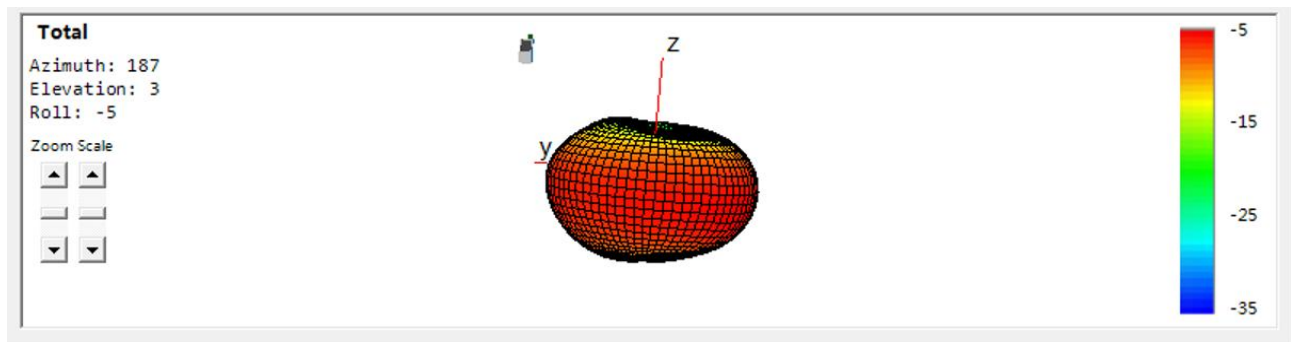
ANNEX A 3-D Patten Plots



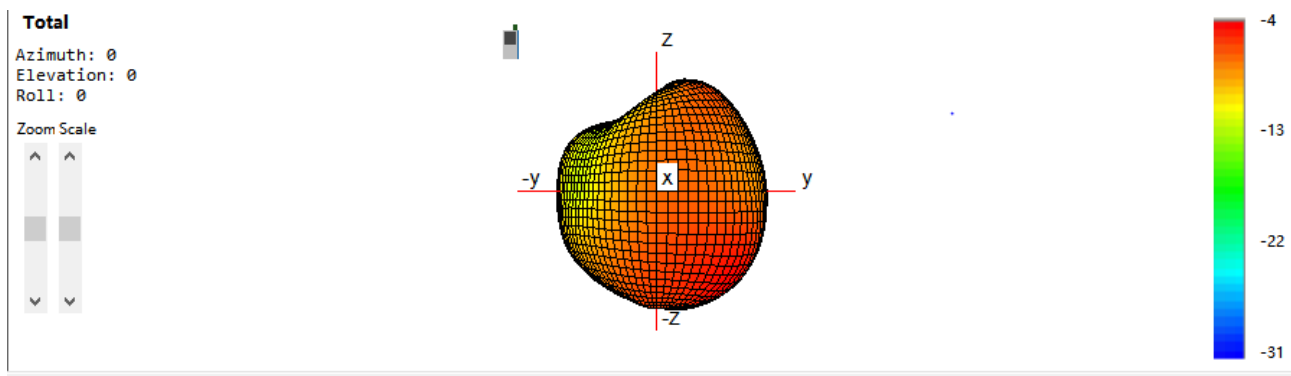
620MHz



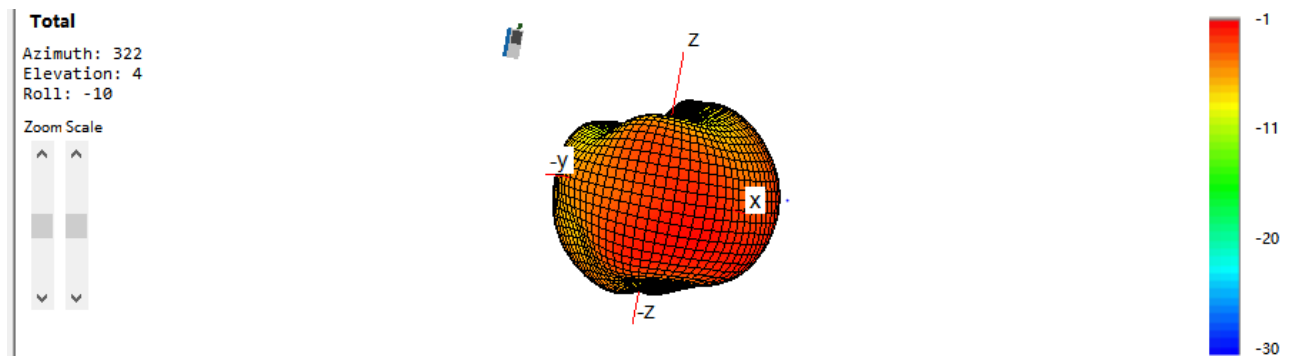
700MHz



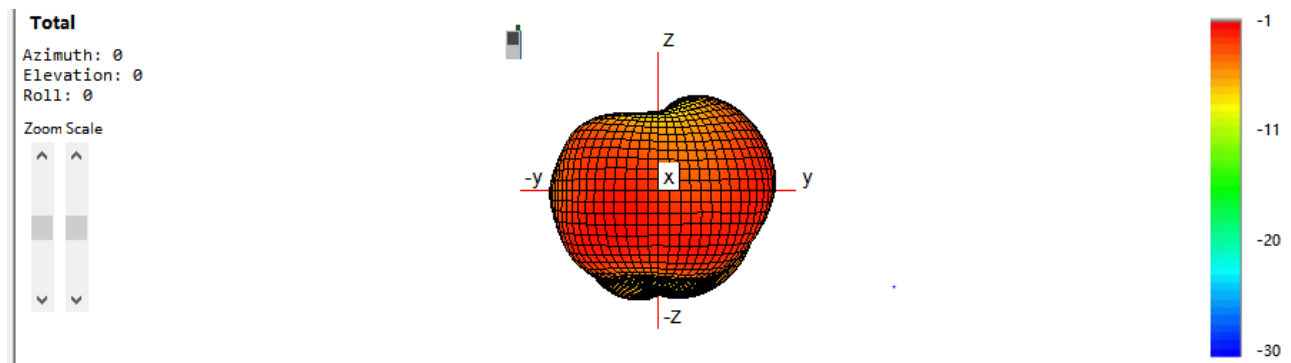
850MHz



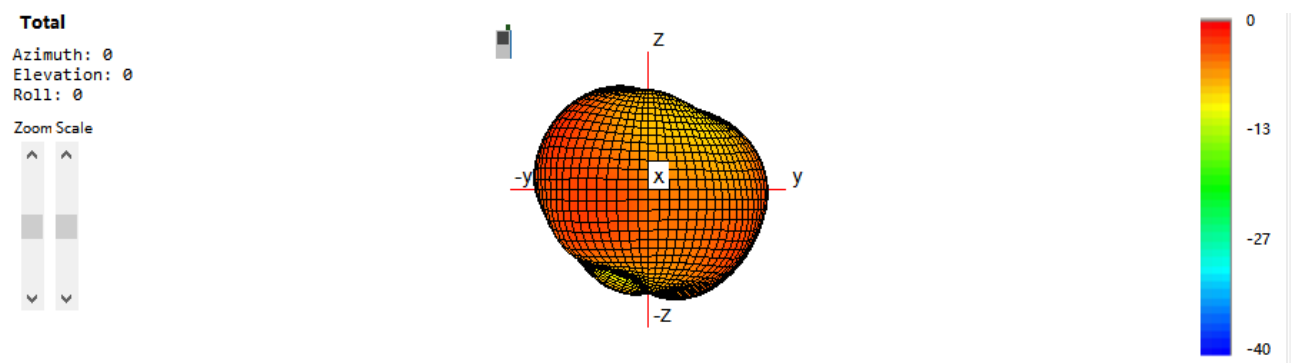
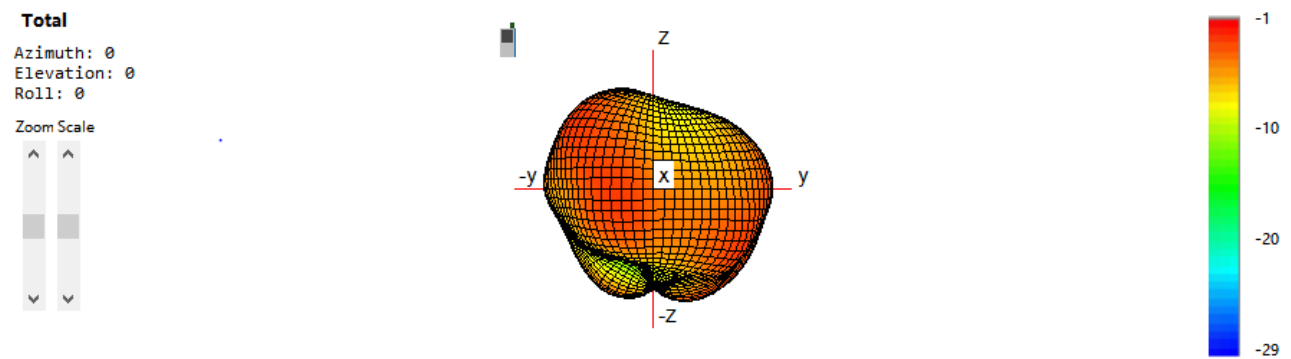
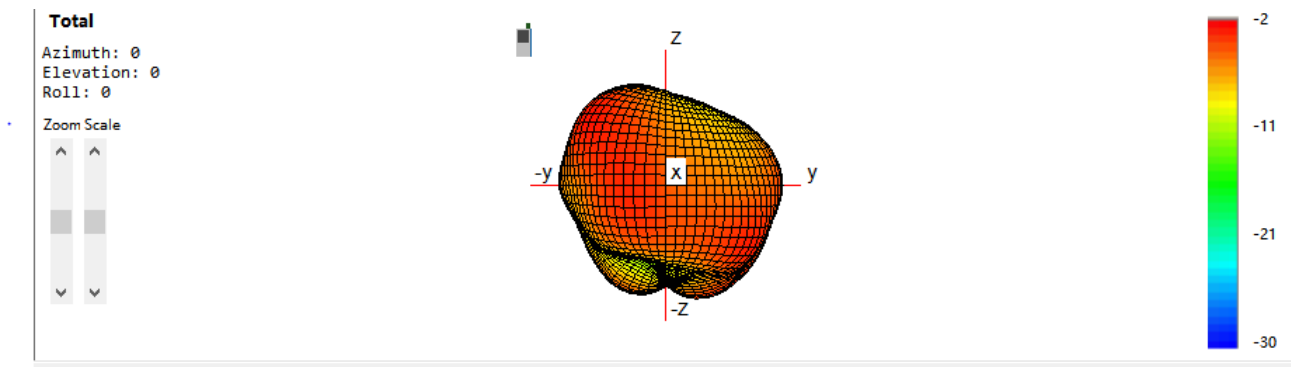
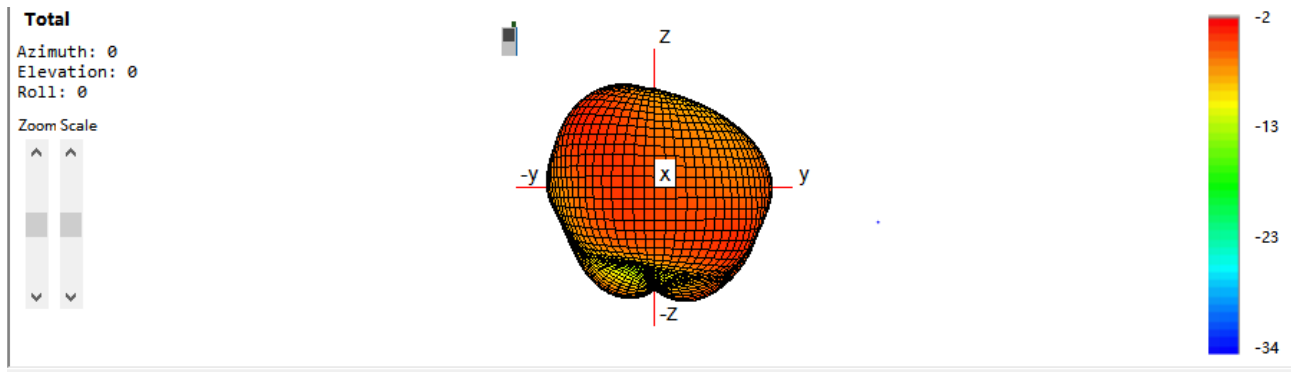
900MHz

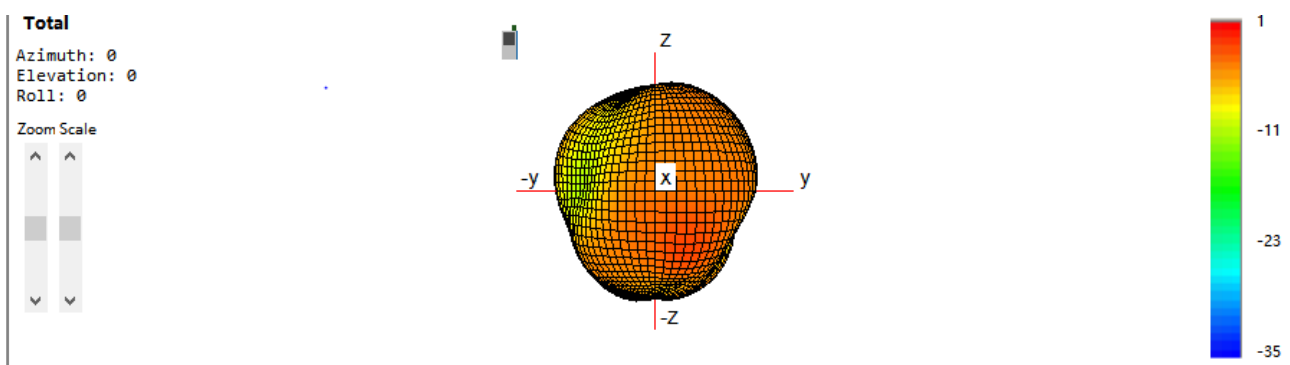
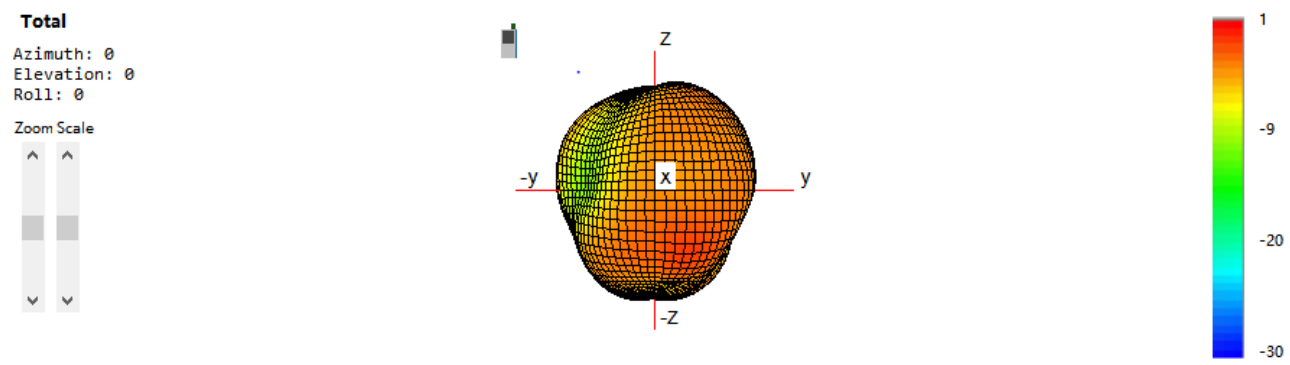
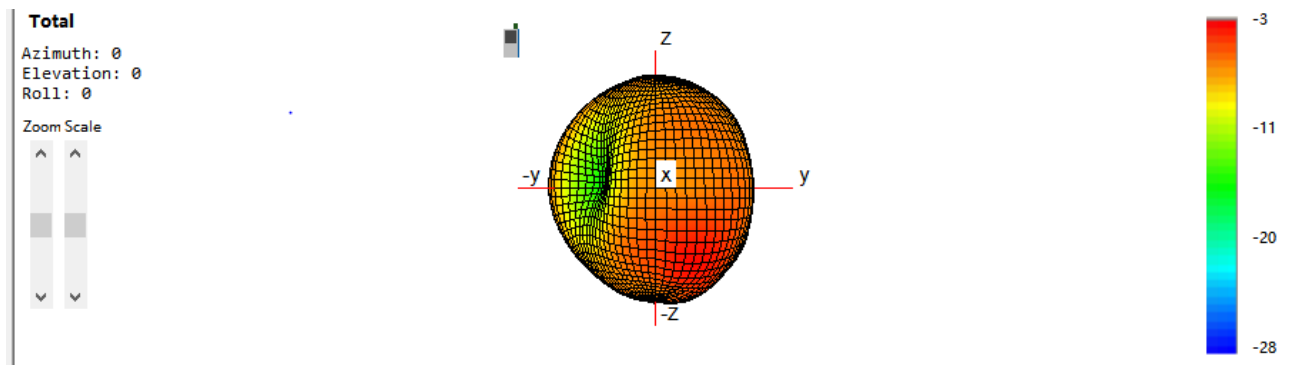
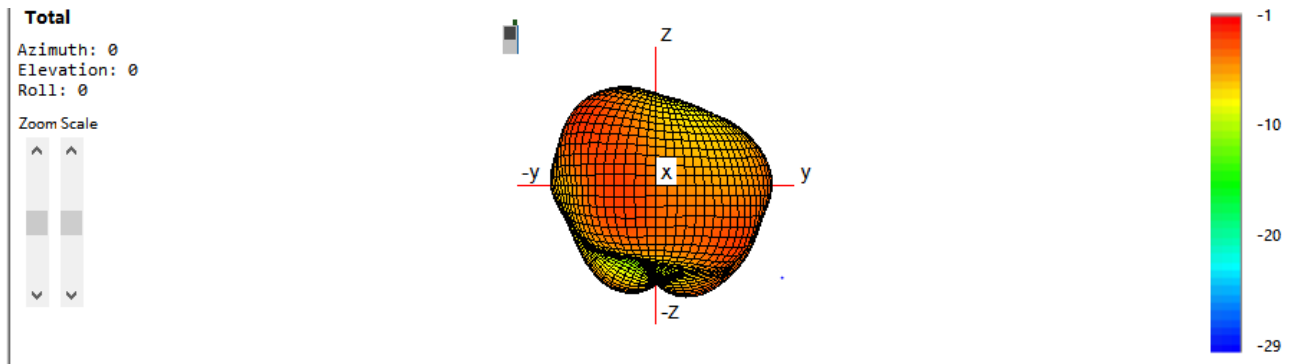


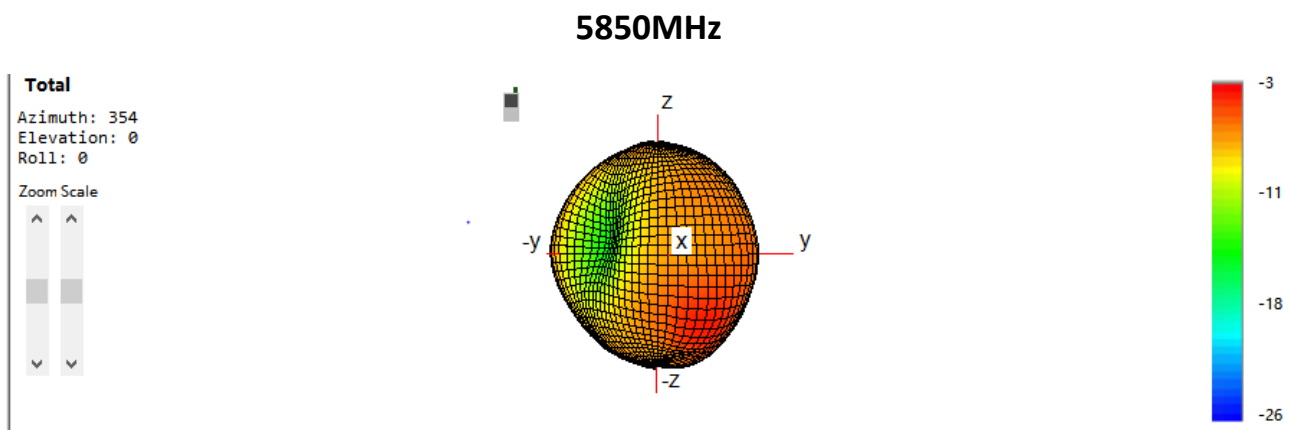
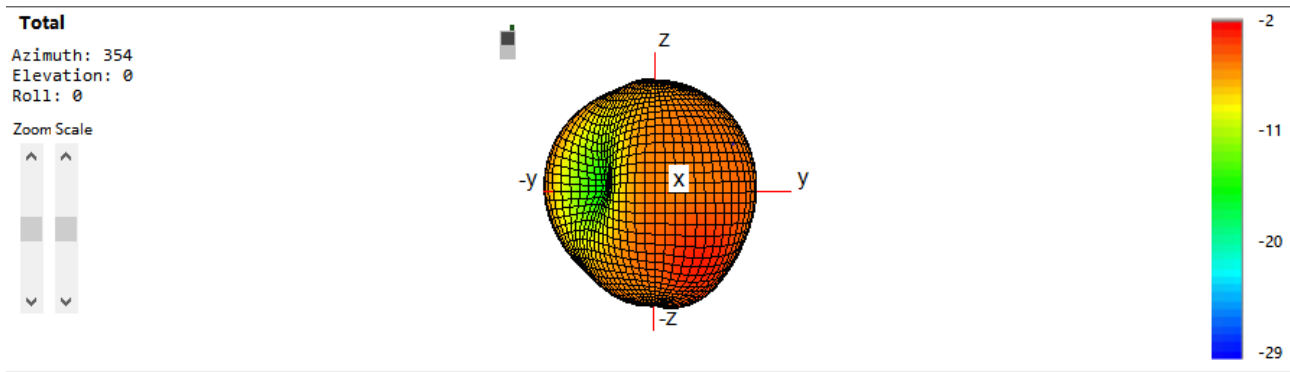
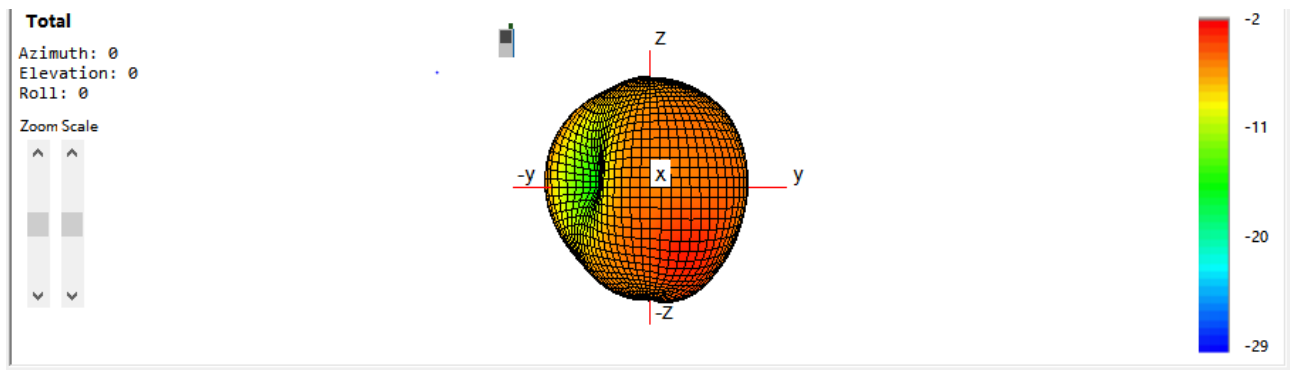
1800MHz



1900MHz

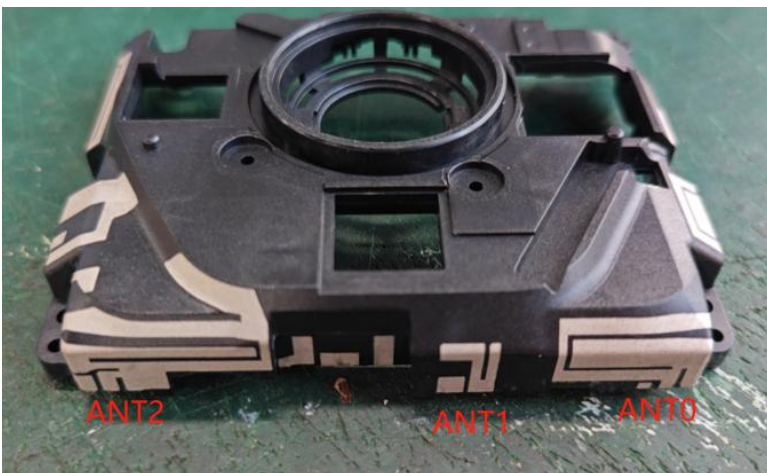






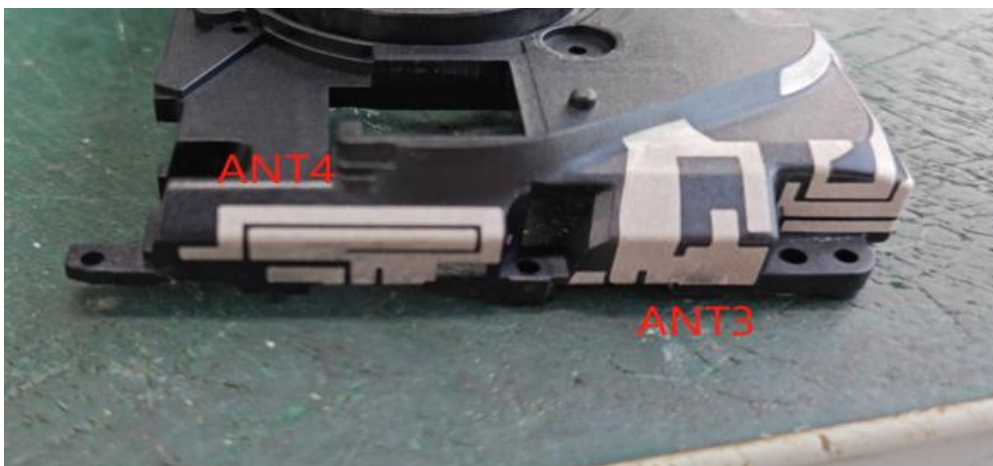
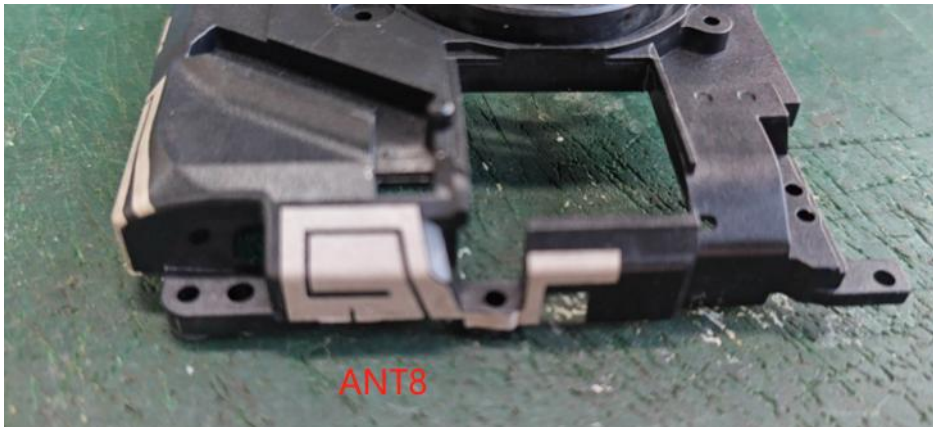
ANNEX B: The EUT Appearance and Test Configuration

B.1 EUT Appearance



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B.2 Test Configuration

