

OTA TEST REPORT

Applicant Shenzhen General Test System Co., Ltd

Product RayZone1800

Issue Date December 30, 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: XiaoYingHu

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.

This report shall not be reproduced except in full, without the written approval of Shenzhen Fu Bang Wireless Technology Co., Ltd.

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.

This report shall not be reproduced except in full, without the written approval of Shenzhen Fu Bang Wireless Technology Co., Ltd.

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

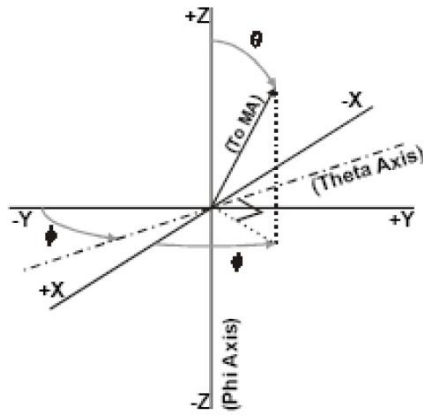
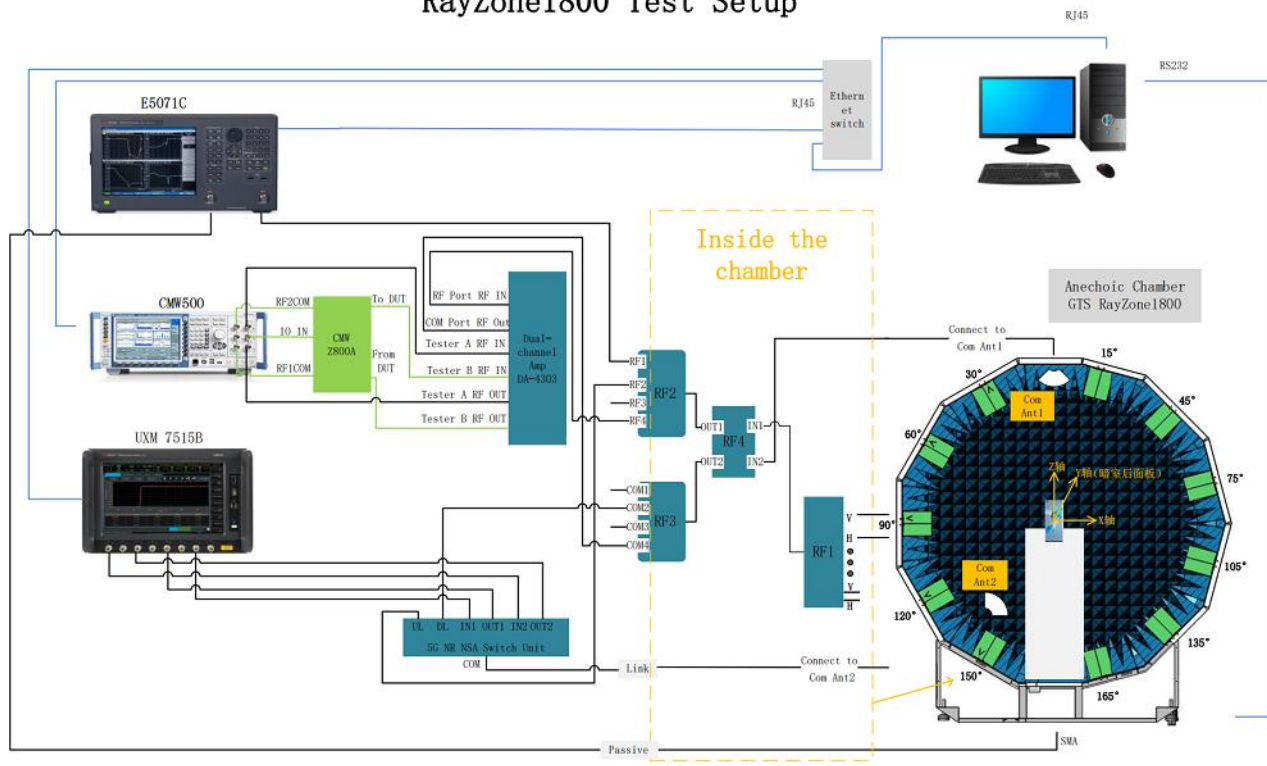


Figure 1 Test coordinate system

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.

This report shall not be reproduced except in full, without the written approval of Shenzhen Fu Bang Wireless Technology Co., Ltd.

4.1 Gain and Efficiency

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	620	11.68	-5.9	1820	23.8	-0.74	
		630	13.39	-5.6	1840	25.1	-1.12	
		640	14.56	-5.1	1860	27.1	-0.82	
		650	15.59	-4.5	1880	28.8	-0.46	
		660	16.22	-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	15.2	-4.4	2420	23.0	-4.16	
		890	19.2	-3.6	2440	24.1	-3.72	
		900	22.7	-2.9	2460	24.2	-3.71	
		910	25.5	-2.6	2480	26.3	-3.72	
		920	25.9	-2.6	2500	28.5	-1.16	
		930	24.3	-3.1	2520	29.3	-0.89	
		940	22.1	-3.6	2540	30.2	-0.79	
		950	19.3	-4.2	2560	31.3	-0.77	
		960	16.3	-4.9	2580	31.9	-0.35	
		1700	23.74	-2.7	2600	32.0	-0.31	
		1720	24.88	-1.7	2620	32.3	-0.08	
		1740	24.38	-1.6	2640	31.1	0.05	
		1760	24.96	-1.3	2660	29.2	0.33	
		1780	25.83	-1.0	2680	26.8	0.33	
		1800	26.01	-0.7	2700	26.1	0.29	

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space	3300	33.38	-1.41	4530	-0.97	24.14	
		3330	37.03	-1.08	4560	-0.7	25.73	
		3360	38.68	-0.75	4590	-0.99	26.51	
		3390	37.37	-0.86	4620	-0.67	28.38	
		3420	35.62	-0.73	4650	-1	27.51	
		3450	35.79	-0.84	4680	-1.08	28.51	
		3480	36.54	-0.69	4710	-0.51	30.2	
		3510	34.42	-0.98	4740	-0.84	29.72	
		3540	35.07	-0.93	4770	-0.51	31.64	
		3570	36.15	-0.73	4800	-0.34	32.49	
		3600	35.03	-0.91	4830	-0.32	31.29	
		3630	32.29	-1.08	4860	-0.03	31.89	
		3660	29.65	-1.34	4890	-0.08	31.42	
		3690	28.26	-1.51	4920	-0.51	28.18	
		3720	26.62	-1.49	4950	-0.57	25.85	
		3750	25.51	-1.72	4980	-0.61	25.89	
		3780	25.3	-1.58	5000	-0.88	25.2	
		3810	24.85	-1.55				
		3840	23	-2.01	1450	36.33	-0.84	
		3870	20.97	-2.57	1460	35.6	-0.9	
		3900	19.99	-2.64	1470	35.52	-0.62	
		3930	20.16	-2.92	1480	33.39	-0.89	
		3960	23.67	-2.42	1490	31.59	-0.94	
		3990	22.55	-2.59	1500	29.95	-1.23	
		4020	22.92	-2.48				
		4050	23.89	-2.25	1160	17.14	-6.02	
		4080	22.76	-2.09	1170	18.29	-5.71	
		4110	24.36	-1.81	1180	18.11	-5.03	
		4140	22.45	-1.85	1190	17.14	-4.45	
		4170	23.33	-1.47				
		4200	24.38	-1.48				
		4230	23.95	-1.62				
		4260	24.54	-1.93				
		4290	25.05	-1.25				
		4320	23.6	-0.96				
		4350	22.83	-1.49				
		4380	23.81	-1.01				
		4410	25.15	-0.9				
		4440	26.03	-1.36				
		4470	25.39	-1.24				
		4500	23.68	-1.34				

Model	Test State	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)	Note
	Free Space				5820	38.78	-0.2	
					5860	38.59	-0.3	
		1560	34.9	-1.6	5900	38.33	0.9	
		1570	35.8	-1.4	5940	35.91	0.7	
		1580	35.4	-1.2	5980	36.42	0.8	
		1590	35.8	-1.5	6020	35.48	0.6	
		2410	27.7	-1.2	6060	32.45	1.0	
		2400	26.0	-0.6	6100	33.56	1.4	
		2410	27.7	-1.2	6140	34.08	1.6	
		2420	29.9	-1.7	6180	33.79	1.2	
		2430	33.4	-2.1	6220	36.03	1.4	
		2440	35.8	-1.9	6260	35.17	0.4	
		2450	37.7	-1.6	6300	36.48	0.3	
		2460	38.7	-1.4	6340	37.36	-0.6	
		2470	39.6	-1.3	6380	33.91	-0.3	
		2480	40.4	-1.2	6420	35.44	-0.5	
		2490	40.5	-1.1	6460	36.85	-0.8	
		2500	40.6	-1.0	6500	36.73	-0.8	
		5100	21.6	0.7	6540	38.29	-1.0	
		5140	21.9	0.9	6580	37.94	-1.4	
		5180	24.0	1.2	6620	37.63	-1.0	
		5220	27.2	1.5	6660	37.58	-1.2	
		5260	27.5	1.0	6700	32.37	-0.7	
		5300	28.6	0.8	6740	32.32	-0.6	
		5340	30.1	0.6	6780	29.96	-0.6	
		5380	30.8	0.3	6820	31.04	-0.8	
		5420	32.3	0.4	6860	30.37	-0.6	
		5460	33.4	0.1	6900	28.04	-0.7	
		5500	35.0	-0.2	6940	30.16	-0.7	
		5540	39.5	-0.4	6980	27.82	-0.8	
		5580	42.0	0.3	7020	25.93	-0.9	
		5620	40.9	0.8	7060	24.79	-0.9	
		5660	40.0	1.0	7100	25.65	-1.3	
		5700	37.8	1.0	7140	25.84	-1.9	
		5740	32.7	0.3	7180	26.43	-2.1	
		5780	33.5	0.2	7200	26.23	-2.2	

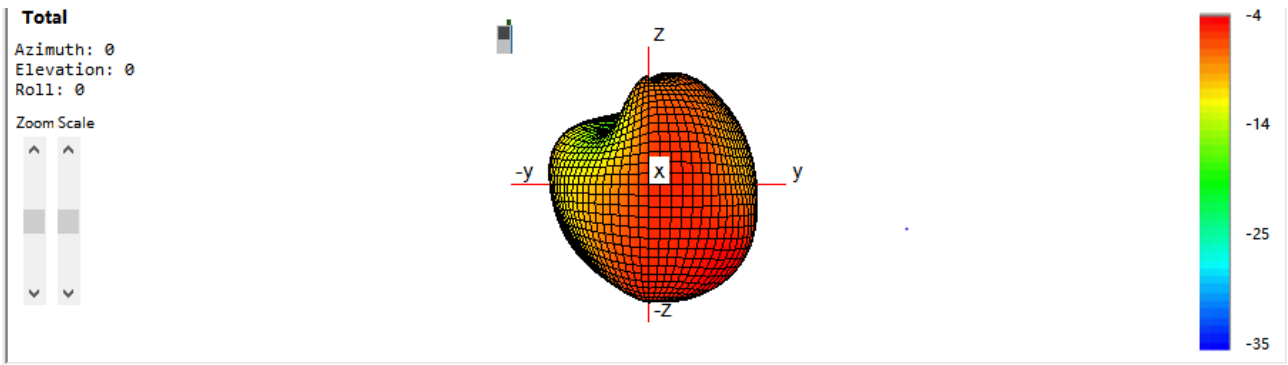
5. Equipment List

Shenzhen Fu Bang Wireless Technology Co., Ltd.

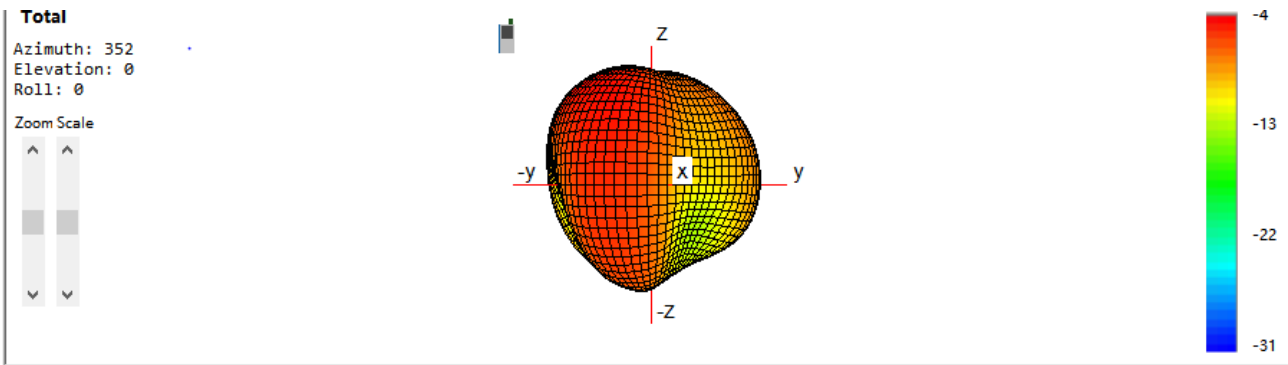
This report shall not be reproduced except in full, without the written approval of Shenzhen Fu Bang Wireless Technology Co., Ltd.

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

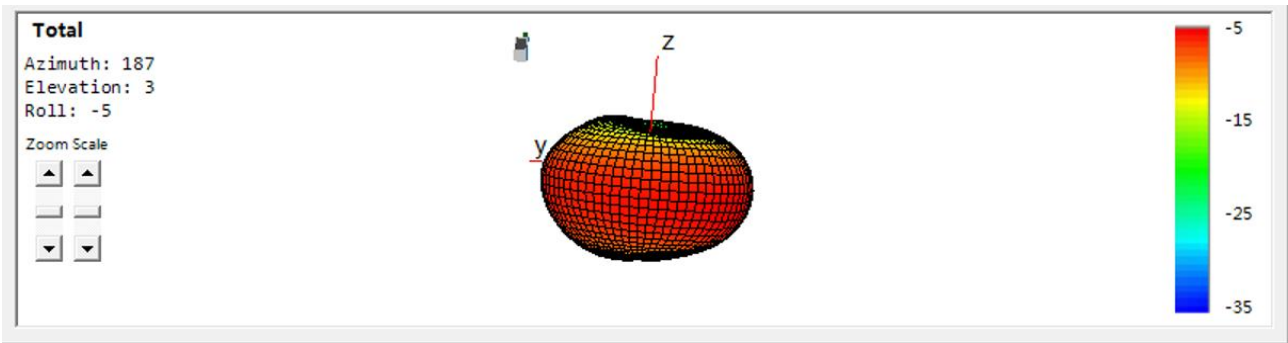
ANNEX A 3-D Patten Plots



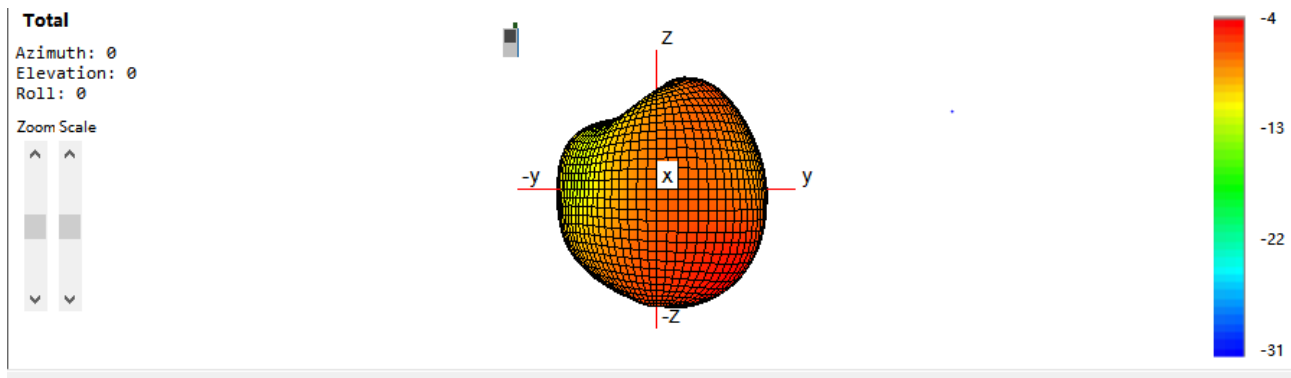
620MHz



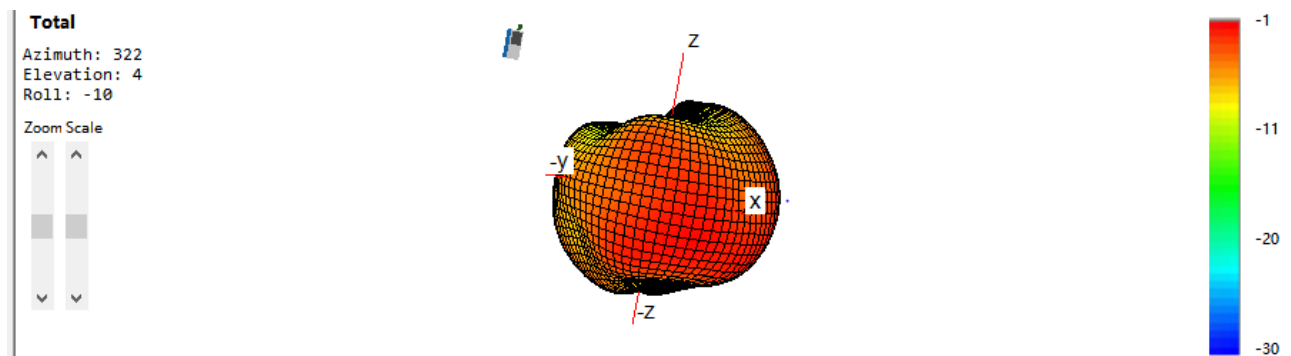
700MHz



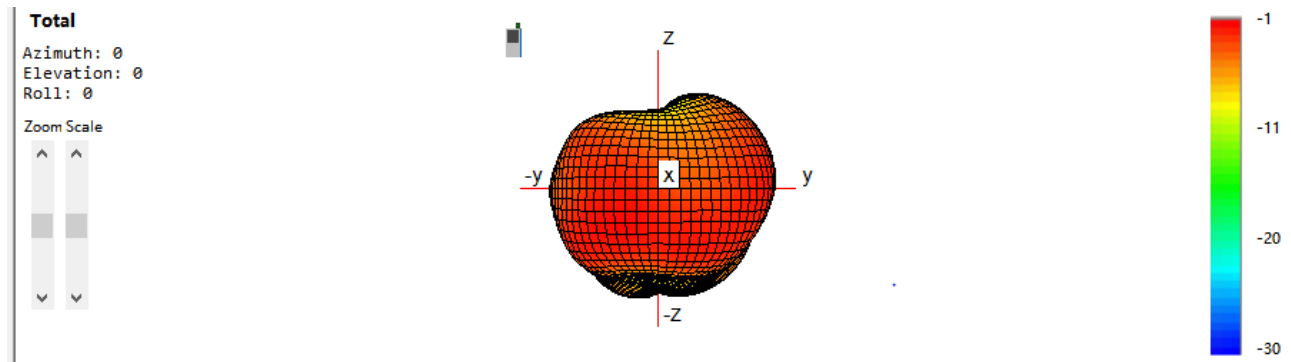
850MHz



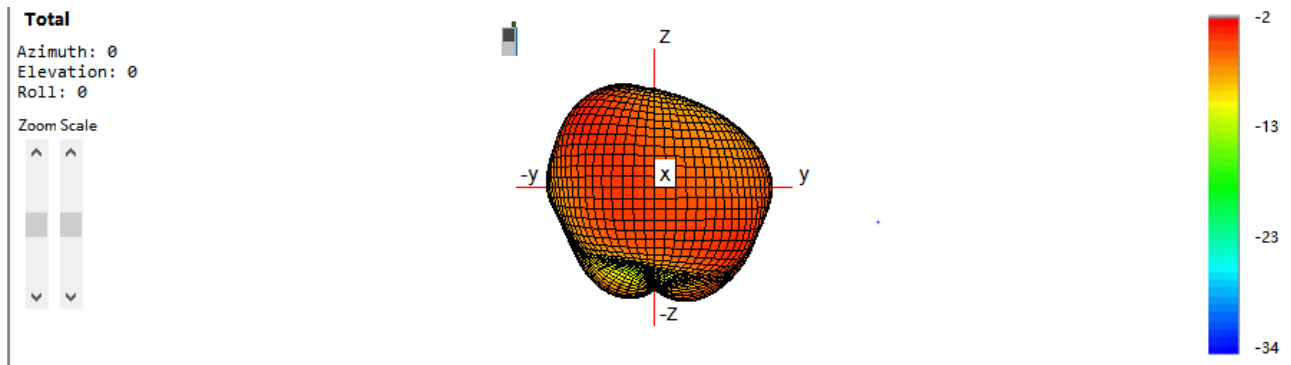
900MHz



1800MHz



1900MHz

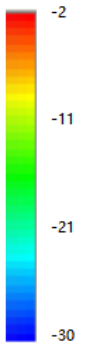
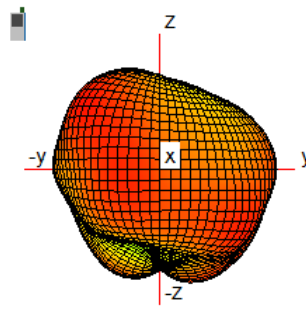


2100MHz

Total

Azimuth: 0
Elevation: 0
Roll: 0

Zoom Scale

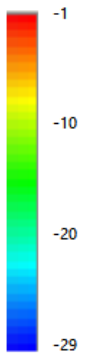
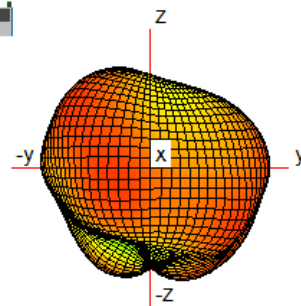


2700MHz

Total

Azimuth: 0
Elevation: 0
Roll: 0

Zoom Scale

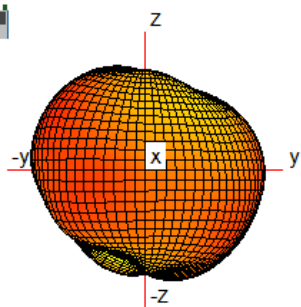


3300MHz

Total

Azimuth: 0
Elevation: 0
Roll: 0

Zoom Scale

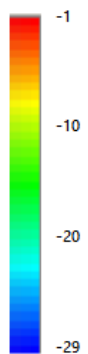
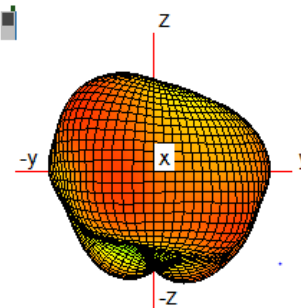


3800MHz

Total

Azimuth: 0
Elevation: 0
Roll: 0

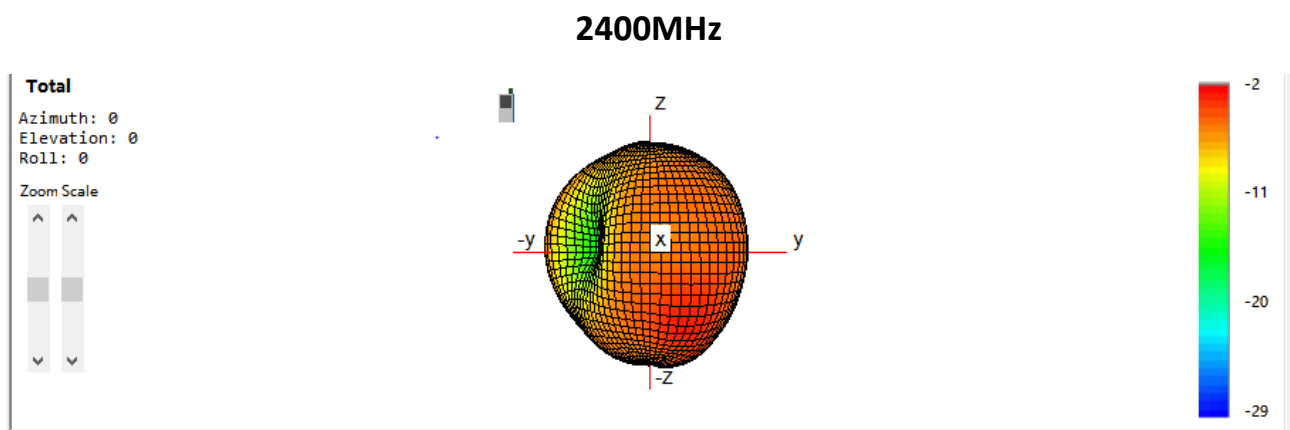
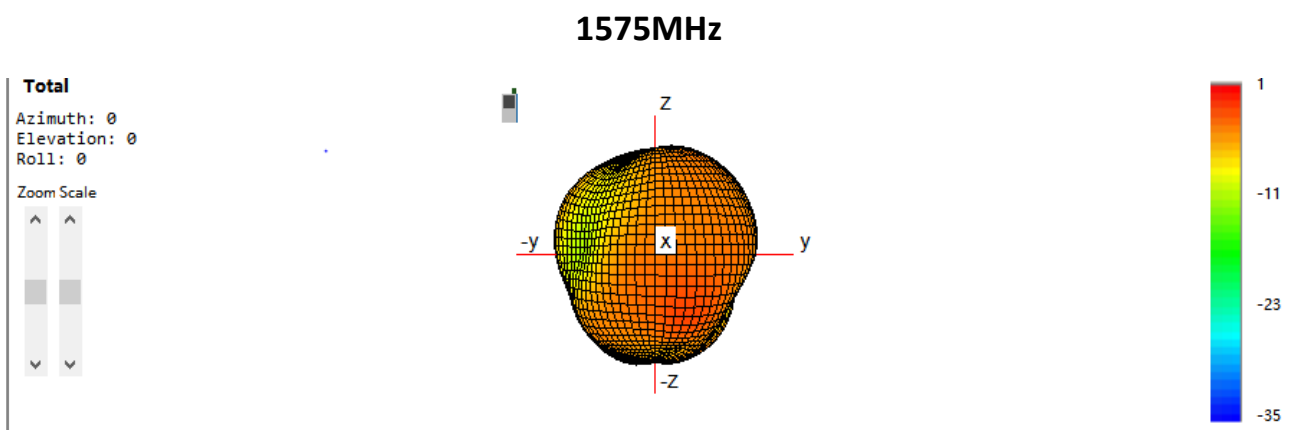
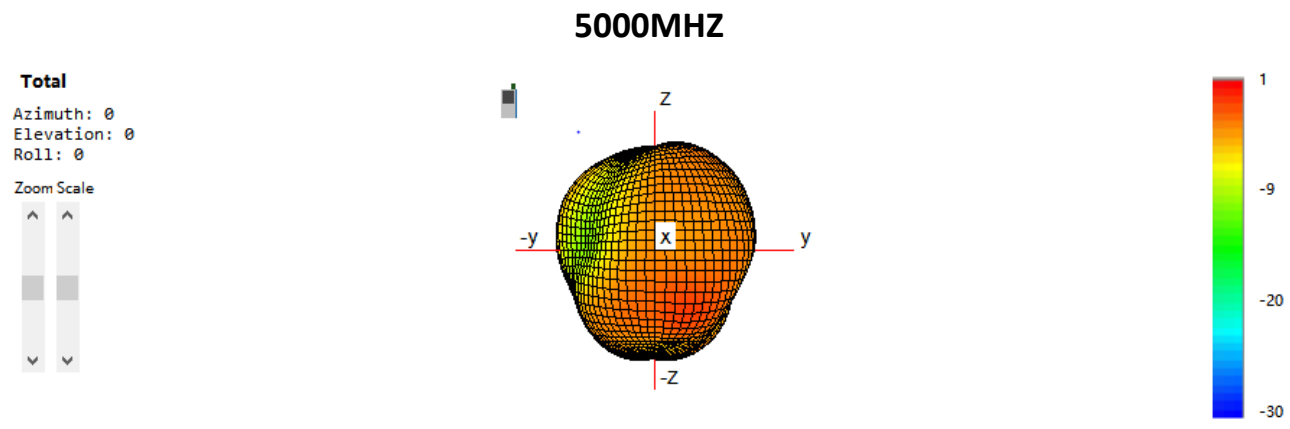
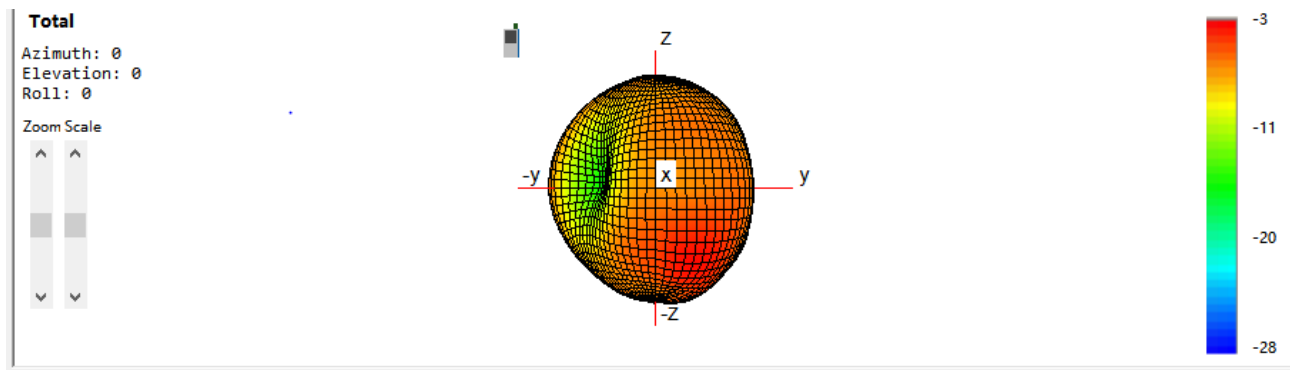
Zoom Scale

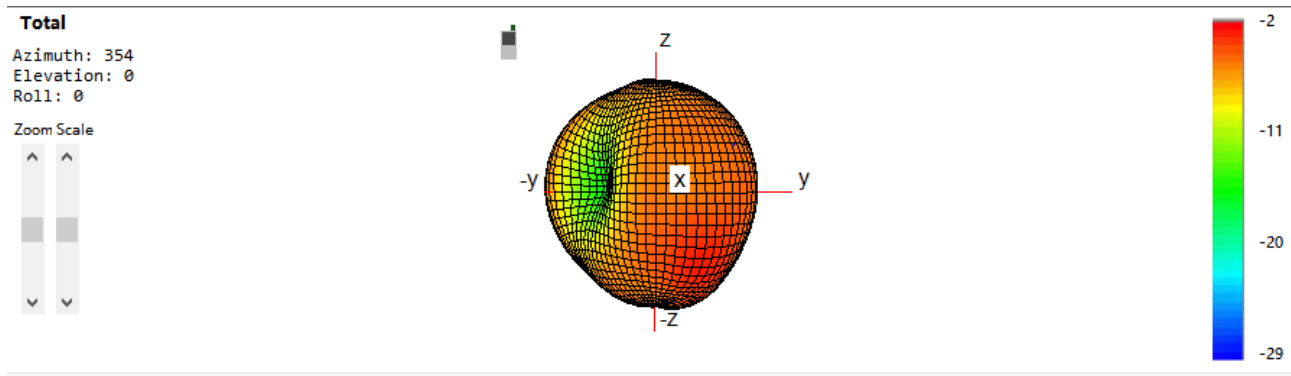


4200MHz

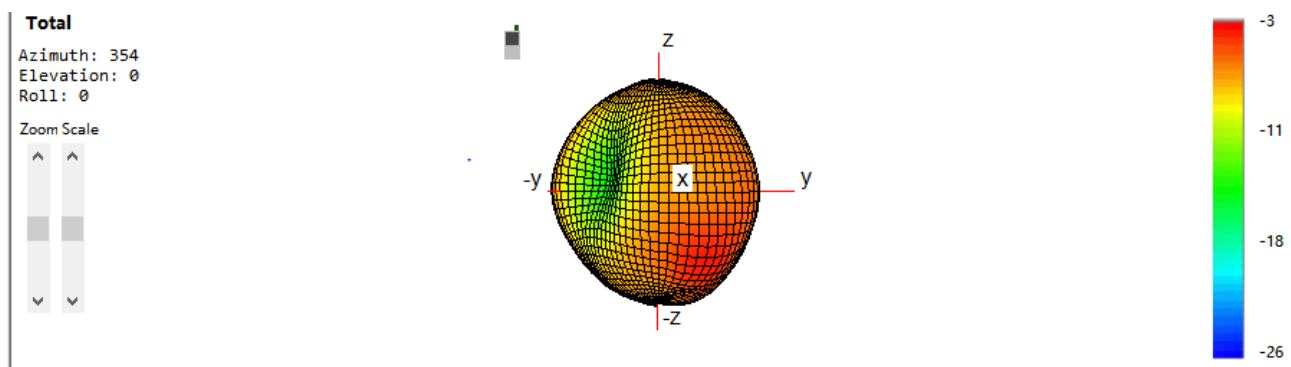
Shenzhen Fu Bang Wireless Technology Co., Ltd.

This report shall not be reproduced except in full, without the written approval of Shenzhen Fu Bang Wireless Technology Co., Ltd.





5850MHz

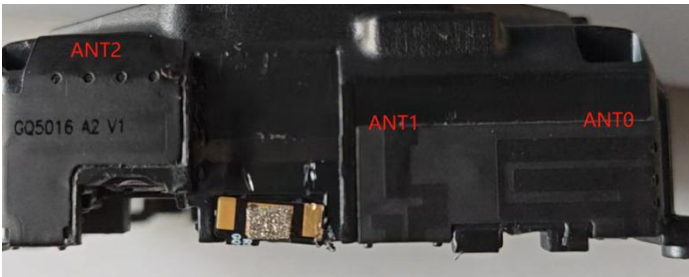
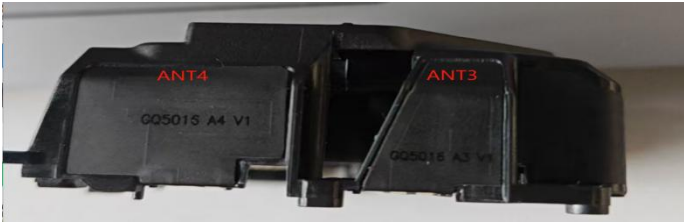


7000MHZ

ANNEX B: The EUT ANT and Test Configuration

B.1 EUT ANT





B.2 Test Configuration

