

OTA TEST REPORT(Passive)

Applicant Shenzhen General Test System Co., Ltd

Product GQ5009-G85

Issue Date 2024/8/8

Shenzhen 3Good Wireless Communication 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: Quanzhang Liu

Approved by: Wu Zhou

Shenzhen 3Good Wireless Communication Co., Ltd

Room 501-508,jinfulai Building,No.49-1,Dabao Road,Baoan
District,Shenzhen

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 3Good Wireless Communication Co., Ltd

Address: Room501-508,jinfulaiBuilding,No.49-1,DabaoRoad,BaoanDistrict,
Shenzhen

Contact: Mulong LV

Telephone: 15078573437

E-mail: lvmulong-rfrd@3good.net.cn

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

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	FPC Antenna
Antenna Manufacturer	Shenzhen 3Good Wireless Communication Co., Ltd
Test Frequency	800MHz-2500MHz

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

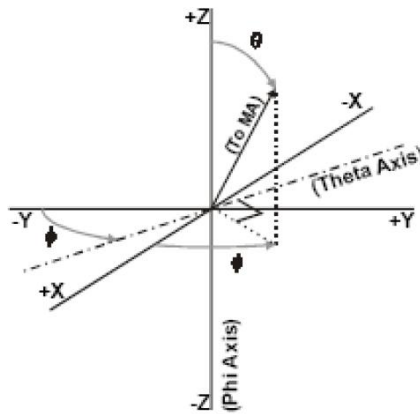
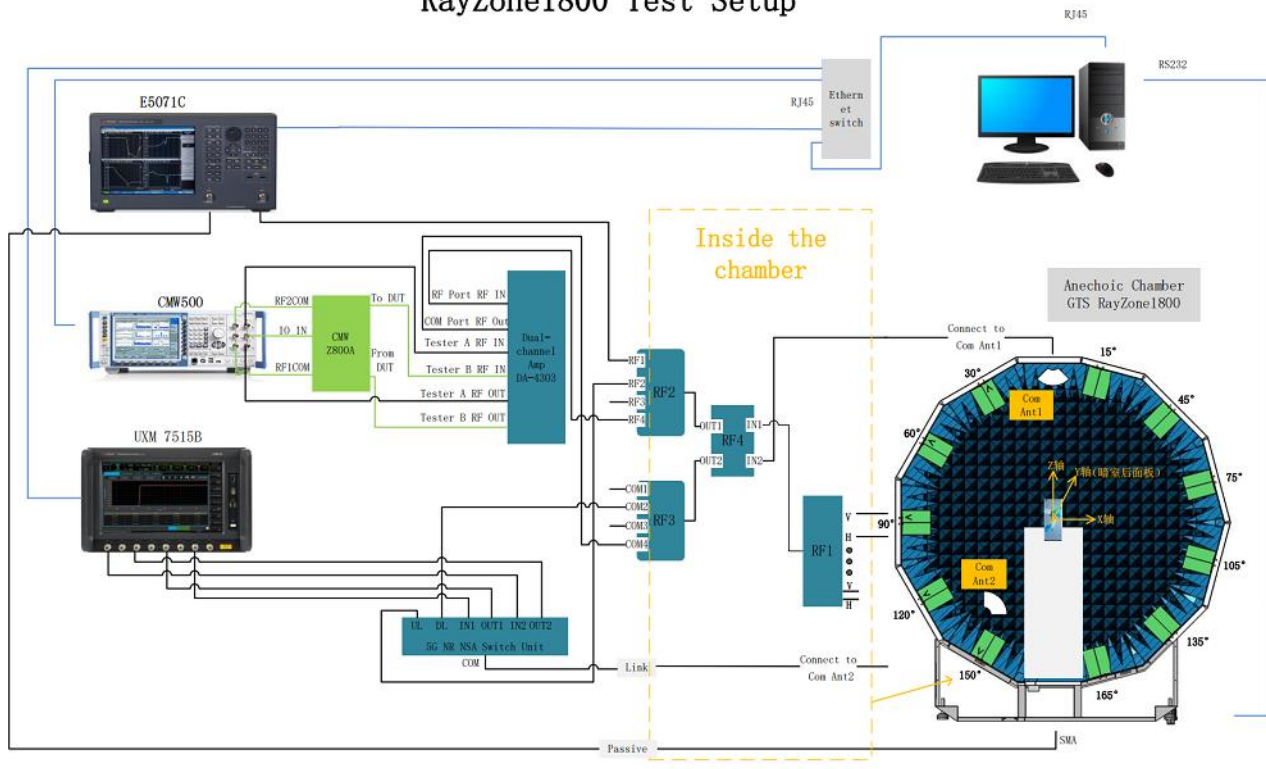


Figure 1 Test coordinate system

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 Antenna Effi.& Max. Peak Gain

下天线

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
870	10.52	-9.78	-6.11
880	11.29	-9.47	-5.76
890	12.3	-9.1	-5.43
900	13.69	-8.64	-5.19
910	14.77	-8.31	-4.97
920	15.05	-8.22	-4.83
930	14.38	-8.42	-4.74
940	13.53	-8.69	-4.82

950	13.6	-8.67	-4.64
960	13.04	-8.85	-4.46

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
810	21.13	-6.75	-3.66
820	18.55	-7.32	-4.14
830	15.26	-8.16	-5
840	13.64	-8.65	-5.21
850	12.16	-9.15	-5.56
860	11.46	-9.41	-5.88
870	10.69	-9.71	-5.96
880	11.09	-9.55	-5.83
890	11.41	-9.43	-5.82

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
690	26.33	-5.79	-2.23
700	26.47	-5.77	-2.41
710	31.25	-5.05	-1.55
720	26.97	-5.69	-2.07
730	22.28	-6.52	-2.55
740	20.72	-6.84	-2.76
750	18.89	-7.24	-3.03
760	18.04	-7.44	-3.32
770	14.05	-8.52	-4.46
780	13	-8.86	-4.96
790	12.2	-9.14	-5.43
800	12.85	-8.91	-5.4
810	9.45	-10.24	-6.77

上天线

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	26.44	-5.78	-1.51
1720	29.22	-5.34	-1.23
1730	29.85	-5.25	-1.07
1740	29.86	-5.25	-1.1

1750	30.1	-5.21	-1.08
1760	31.13	-5.07	-0.94
1770	32.76	-4.85	-0.78
1780	34.03	-4.68	-0.73
1790	33.79	-4.71	-0.82
1800	34.03	-4.68	-0.78
1810	33.59	-4.74	-0.83
1820	32.8	-4.84	-0.92
1830	33.35	-4.77	-0.86
1840	33.82	-4.71	-0.93
1850	34.66	-4.6	-0.93
1860	35.48	-4.5	-0.95
1870	35.31	-4.52	-1.07
1880	35.91	-4.45	-1.07
1890	36.5	-4.38	-1.1
1900	36.83	-4.34	-1.01
1910	36.47	-4.38	-1
1920	36.72	-4.35	-0.92
1930	34.93	-4.57	-1.27
1940	32.46	-4.89	-1.6
1950	30.94	-5.09	-1.8
1960	28.69	-5.42	-2.17
1970	28.24	-5.49	-2.51
1980	29.52	-5.3	-2.69
1990	28.46	-5.46	-3.16
2000	28.42	-5.46	-2.98
2010	26.5	-5.77	-3.15
2020	25.19	-5.99	-3.2
2030	26.31	-5.8	-2.83
2040	25.63	-5.91	-2.63
2050	24.48	-6.11	-2.46
2060	23.68	-6.26	-2.22
2070	23.33	-6.32	-2.14
2080	23.8	-6.23	-1.89
2090	24.8	-6.06	-1.57
2100	23.8	-6.23	-1.58
2110	20.34	-6.92	-2.19
2120	19.15	-7.18	-2.4
2130	19.34	-7.14	-2.33
2140	19.41	-7.12	-2.17
2150	18.38	-7.36	-2.4
2160	17.31	-7.62	-2.66

2170	17.7	-7.52	-2.57
------	------	-------	-------

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	19.4	-7.12	-1.56
2310	19.69	-7.06	-1.59
2320	21.39	-6.7	-1.43
2330	24.13	-6.18	-0.99
2340	27.04	-5.68	-0.64
2350	27.09	-5.67	-0.59
2360	27.71	-5.57	-0.6
2370	27.86	-5.55	-0.63
2380	28.78	-5.41	-0.53
2390	28.25	-5.49	-0.6
2400	28.25	-5.49	-0.54
2410	27.42	-5.62	-0.73
2420	28.55	-5.44	-0.6
2430	28.91	-5.39	-0.5
2440	27.92	-5.54	-0.65
2450	27.57	-5.59	-0.76
2460	26.28	-5.8	-1.06
2470	26	-5.85	-1.17
2480	26.46	-5.77	-1.06
2490	27	-5.69	-1.03
2500	26.14	-5.83	-1.21
2510	25.34	-5.96	-1.32
2520	24.82	-6.05	-1.35
2530	25.76	-5.89	-1.01
2540	24.69	-6.07	-1.28
2550	24.44	-6.12	-1.33
2560	24.08	-6.18	-1.4
2570	24.55	-6.1	-1.12
2580	22.32	-6.51	-1.26
2590	21.2	-6.74	-1.22
2600	20.64	-6.85	-1.11
2610	20.01	-6.99	-0.96
2620	18.26	-7.38	-1.16
2630	16.89	-7.72	-1.25
2640	16.48	-7.83	-1.14
2650	16.08	-7.94	-1.05
2660	15.75	-8.03	-0.93
2670	15.6	-8.07	-0.99

2680	16.04	-7.95	-0.73
2690	14.83	-8.29	-0.99

GPS&WIFI

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1550	35.73	-4.47	2.81
1555	35.65	-4.48	2.71
1560	35.37	-4.51	2.58
1565	33.91	-4.7	2.27
1570	34.47	-4.63	2.23
1575	33.77	-4.71	2.06
1580	33.88	-4.7	2
1585	33.04	-4.81	1.84
1590	33.58	-4.74	1.87
1595	32.55	-4.88	1.77
1600	30.95	-5.09	1.6

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	29.86	-5.25	0.88
2410	29.9	-5.24	0.79
2420	32.23	-4.92	1.14
2430	33.57	-4.74	1.45
2440	33.04	-4.81	1.45
2450	33.8	-4.71	1.52
2460	33.41	-4.76	1.41
2470	33.84	-4.71	1.39
2480	34.55	-4.62	1.54
2490	35.67	-4.48	1.64
2500	33.76	-4.72	1.52

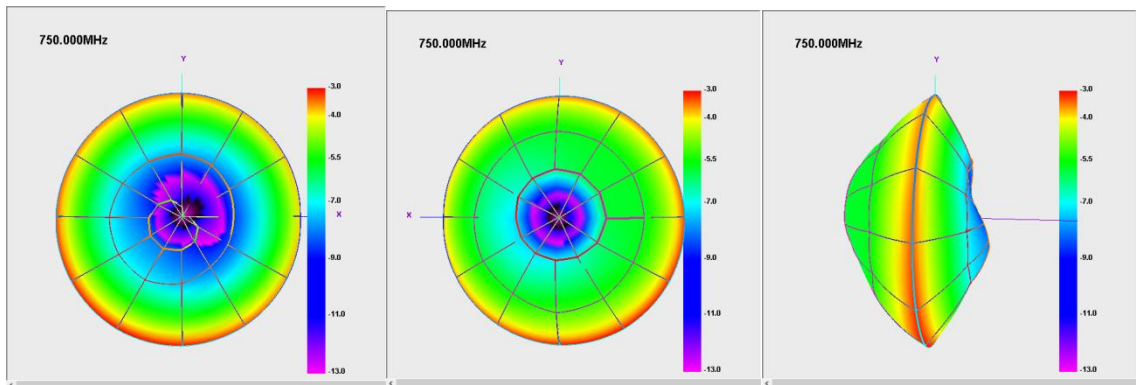
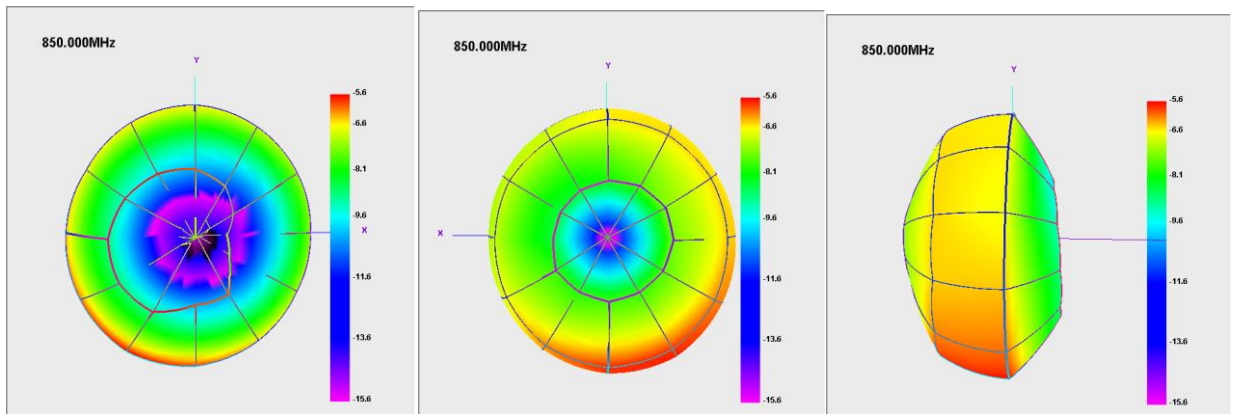
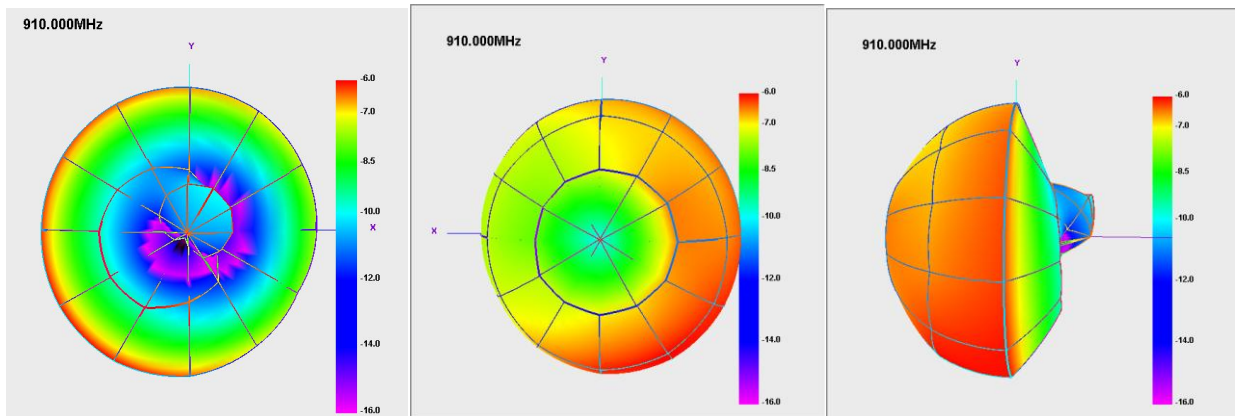
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	29.76	-5.26	-1.11
5160	29.58	-5.29	-1.1
5170	28.9	-5.39	-1.07

5180	28.52	-5.45	-1.3
5190	28.41	-5.46	-1.21
5200	27.65	-5.58	-1.51
5210	29.09	-5.36	-1.34
5220	29.05	-5.37	-1.31
5230	29.86	-5.25	-1.27
5240	28.01	-5.53	-1.55
5250	27.68	-5.58	-1.83
5260	28.01	-5.53	-1.63
5270	27.76	-5.57	-1.9
5280	27.96	-5.53	-2.22
5290	29.01	-5.37	-2.03
5300	26.95	-5.69	-2.35
5310	26.71	-5.73	-2.71
5320	28.35	-5.47	-2.22
5330	27.32	-5.64	-2.37
5340	28.49	-5.45	-2.14
5350	29.14	-5.36	-2.07
5360	27.94	-5.54	-2.33
5370	27.76	-5.57	-2.69
5380	28.83	-5.4	-2.38
5390	27.05	-5.68	-2.72
5400	31.12	-5.07	-1.77
5410	30.71	-5.13	-2.15
5420	30.9	-5.1	-2.1
5430	30.16	-5.21	-2.05
5440	29.71	-5.27	-1.99
5450	28.78	-5.41	-2.16
5460	29.36	-5.32	-2.07
5470	28.31	-5.48	-2.03
5480	26.7	-5.74	-2.21
5490	26.62	-5.75	-2.18
5500	25.39	-5.95	-2.44
5510	23.99	-6.2	-2.27
5520	24.17	-6.17	-2.43
5530	24.93	-6.03	-2.12
5540	25.86	-5.87	-2.06
5550	24.53	-6.1	-2.07
5560	23.52	-6.29	-2.21
5570	23.45	-6.3	-2.57
5580	24.51	-6.11	-2.33
5590	24.42	-6.12	-2.24

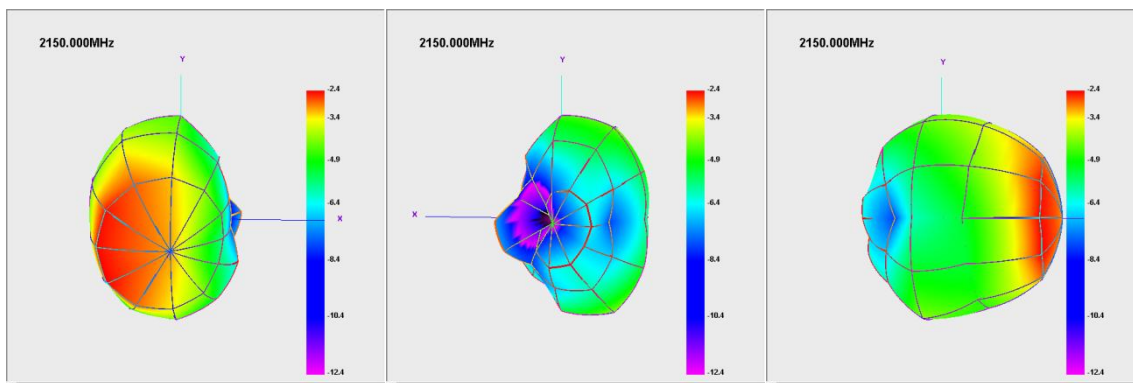
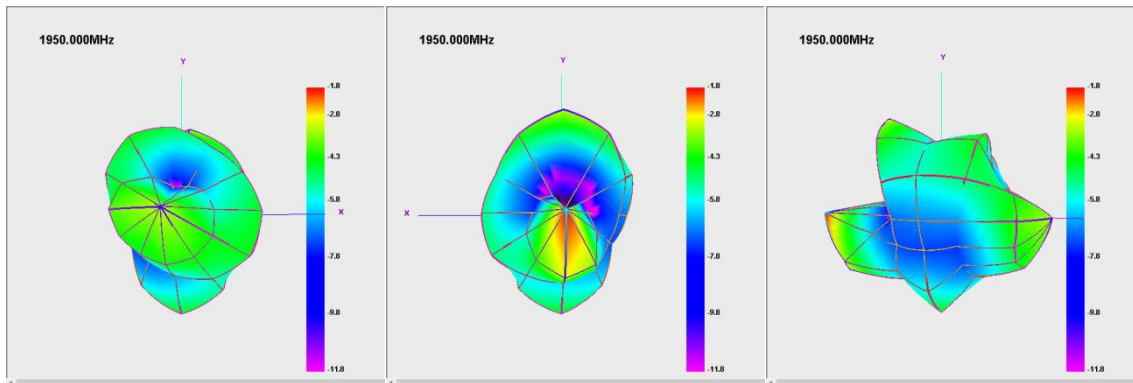
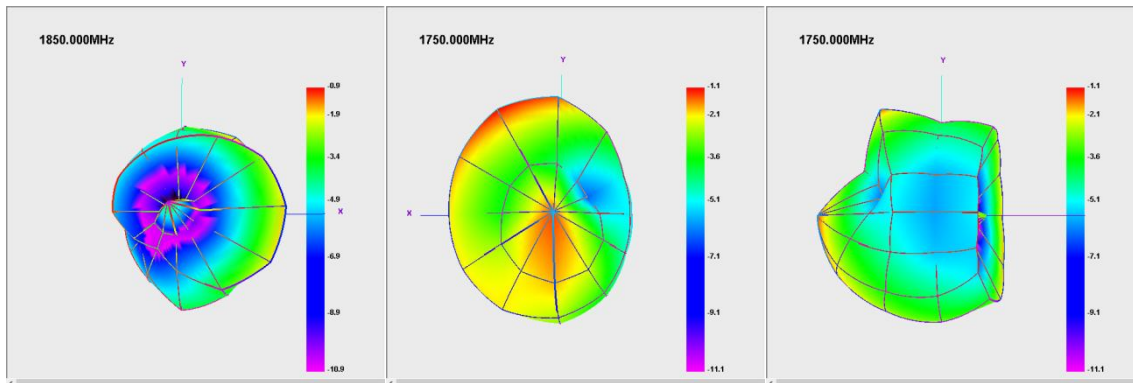
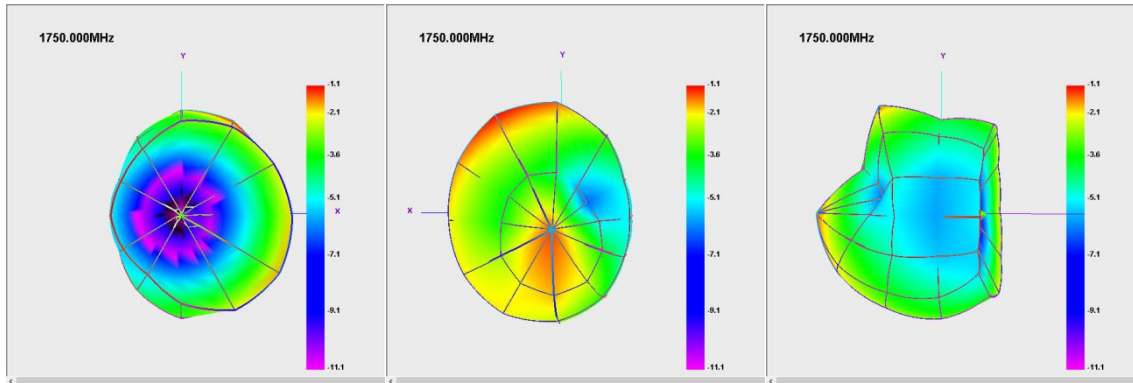
5600	24.53	-6.1	-1.88
5610	23.61	-6.27	-2.48
5620	23.32	-6.32	-2.53
5630	24.1	-6.18	-2.4
5640	24.52	-6.11	-2.34
5650	24.49	-6.11	-2.48
5660	26.03	-5.85	-2.24
5670	25.46	-5.94	-2.39
5680	26.07	-5.84	-2.31
5690	25.56	-5.92	-2.45
5700	26.64	-5.75	-2.33
5710	26.06	-5.84	-2.17
5720	25.41	-5.95	-2.45
5730	25.77	-5.89	-2.34
5740	26.83	-5.71	-2.06
5750	28.01	-5.53	-1.77
5760	26.9	-5.7	-2.05
5770	27.07	-5.68	-1.8
5780	25.66	-5.91	-2.08
5790	25.17	-5.99	-2.37
5800	24.86	-6.05	-2.29
5810	25.18	-5.99	-2.41
5820	26.26	-5.81	-2.05
5830	25.8	-5.88	-2.21
5840	25.31	-5.97	-2.21
5850	26.4	-5.78	-2.07

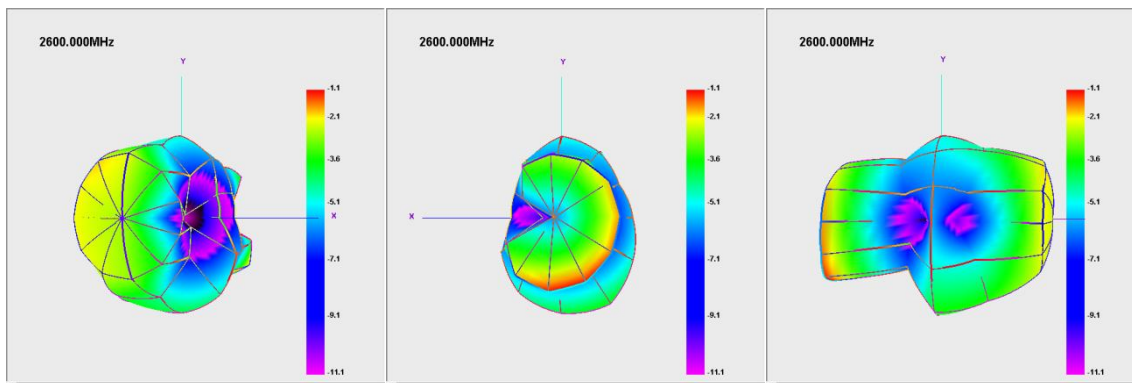
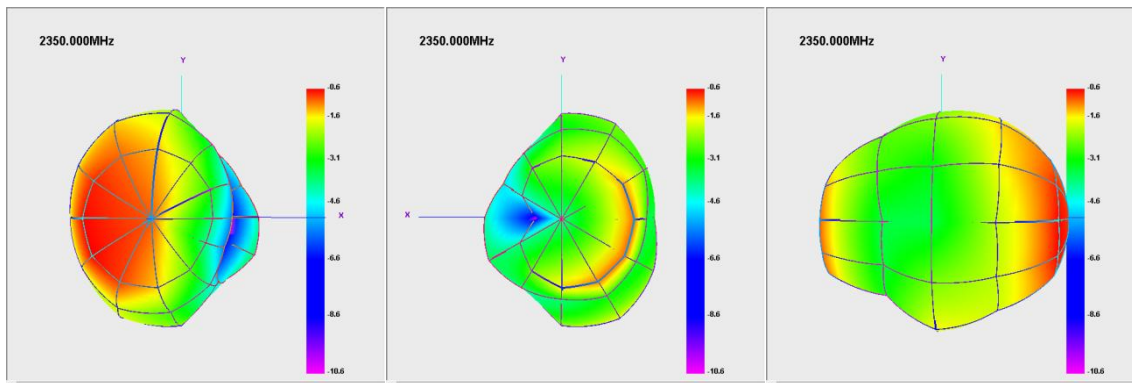
4.2 Antenna radiation pattern

下天线



上天线



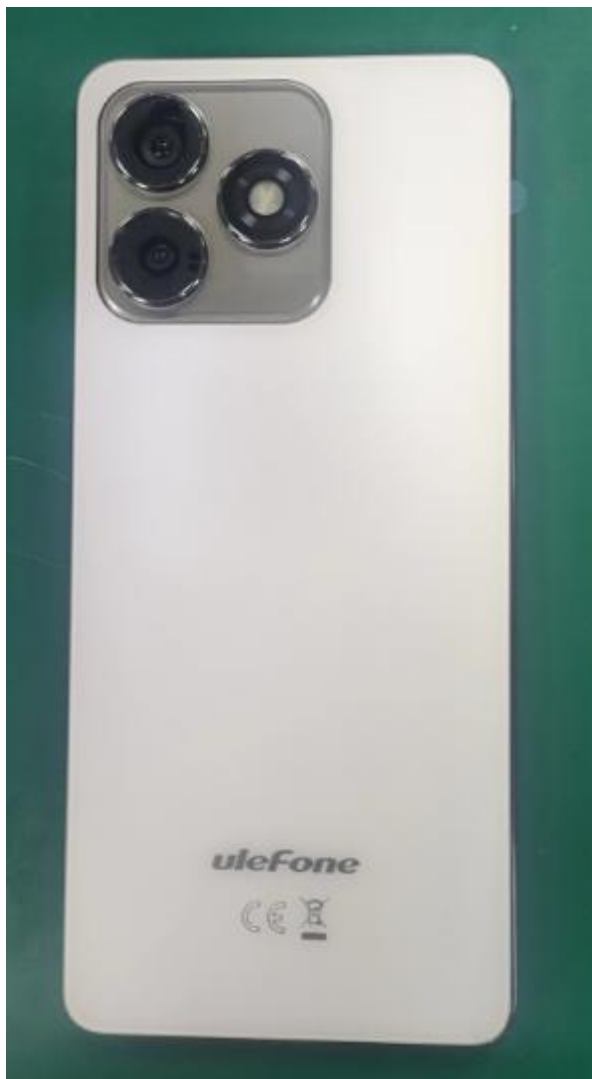


5. Equipment List

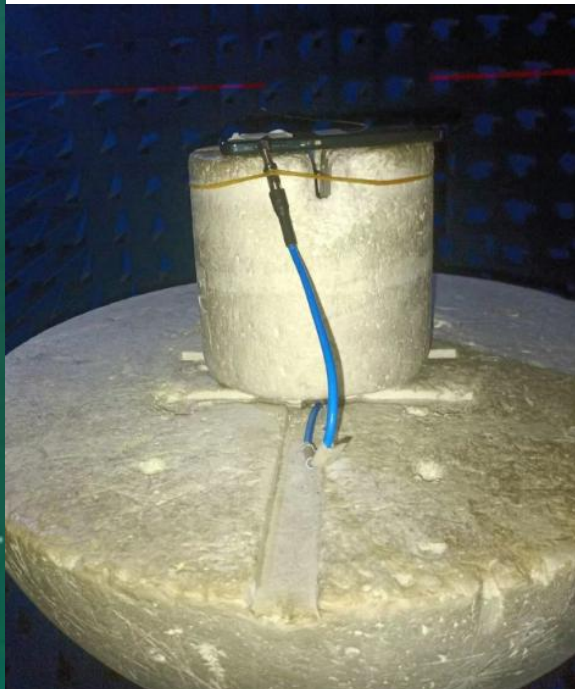
Type of Equipment	Manufacture	Model Number
Network Analyzer	Agilent Technologies	E5071B
Switch control System	GTS	RayZone1800
Software	GTS	MaxSign 100 Patten Measurement software

ANNEX B: The EUT Appearance and Test Configuration

B.1 EUT Appearance



B.2 Test Configuration



NFC Antenna size

