OTA TEST REPORT

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Applicant Shenzhen 3Good Wireless Technology Co., Ltd

Product RayZone1800

Issue Date September 6,2022

Shenzhen 3Good 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 theRequirements as documented in this report.

Prepared by:

Approved by:

Shenzhen 3Good Wireless Technology Co., Ltd

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 purposesonly. This report is written to support regulatory compliance of applicable standards stated above.

1.2 Test facility

GTS1800Microwave Anechoic Chamber ： testing frequency ranges from 600MHz to 6GHz .

1.3 Testing Location

Company: Shenzhen 3Good Wireless Technology Co., Ltd

Address:

Contact:

Telephone:

E-mail:

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

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	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

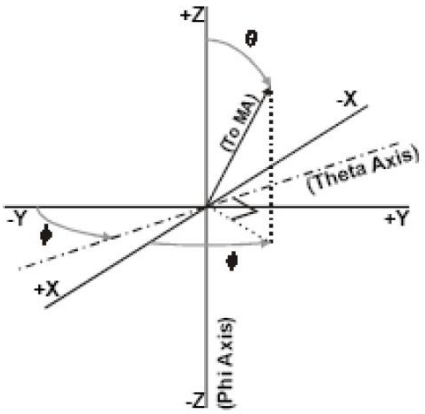
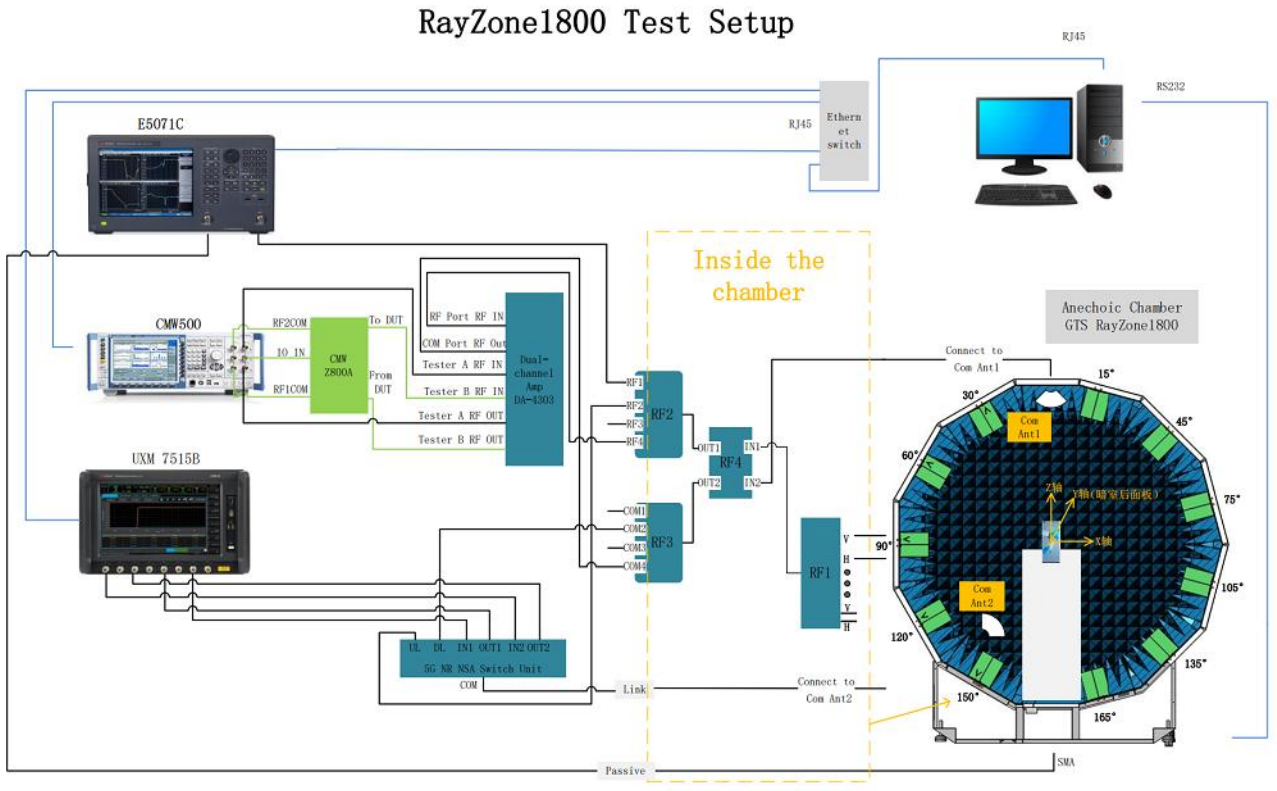


Figure 1 Test coordinate system

Note: Theta is from 0-180degree.Phi is from EUT and record the Date, the step of rotation is 15 degree.

Test Setup



4. Test Results

4.1 Gain and Efficiency

Freq (MHz)	Effi (%)	Gain (dBi)
820	2.71	-10.81
830	2.88	-10.56
840	3.22	-10.2
850	3.43	-10.17
860	3.92	-9.78
870	4.53	-9.12
880	5.91	-8.13
890	7.18	-7.15
900	9.18	-6.28
910	10.15	-5.65
920	10.72	-5.68
930	10.14	-5.8
940	9.71	-6.35
950	9.05	-6.76
960	7.71	-7.19

Freq (MHz)	Effi (%)	Gain (dBi)
1710	13.33	-5.11
1720	15.22	-4.21
1730	15.78	-4.12
1740	16.47	-3.87
1750	18.23	-3.56
1760	19.79	-3.17
1770	21.78	-2.74
1780	21.79	-2.73
1790	20.07	-3.09
1800	19.21	-3.19
1810	17.71	-3.61
1820	17.07	-3.77
1830	17.1	-3.67
1840	16.73	-3.77
1850	16.71	-3.88
1860	16.11	-4.12
1870	15.95	-4.27
1880	16.93	-4.05
1890	16.88	-4.01
1900	17.15	-3.95
1910	17.75	-3.79
1920	17.68	-3.85
1930	18.63	-3.77
1940	19.05	-3.87
1950	19.75	-3.89
1960	20.18	-3.99
1970	20.77	-3.99
1980	20.51	-4.03
1990	20.92	-3.83
2000	20.99	-3.99
2010	21.29	-4.02
2020	21.26	-4.04
2030	21.5	-3.89
2040	22.53	-3.63
2050	23.17	-3.47
2060	22.97	-3.52

2070	22.14	-3.84
2080	21.1	-4.11
2090	19.59	-4.58
2100	19.2	-4.67
2110	14.43	-5.86
2120	14.14	-5.91
2130	14.73	-5.59
2140	15.43	-5.39
2150	14.62	-5.7
2160	14.17	-5.93
2170	12.76	-6.43
2180	13.11	-6.13
2190	12.95	-6.04
2200	13.44	-5.64
2210	13.79	-5.44
2220	14.05	-5.19
2230	14.3	-5.16
2240	15.38	-4.77
2250	16.38	-4.6
2260	17.67	-4.12
2270	18.74	-3.81
2280	18.17	-3.75
2290	20.02	-3.26
2300	21.19	-3.02
2310	22.76	-2.7
2320	24.9	-2.34
2330	25.96	-2.08
2340	25.77	-2.07
2350	27.42	-1.76
2360	26.66	-1.89
2370	27.33	-1.94
2380	26.62	-2.27
2390	27.23	-2.4
2400	27.15	-2.64
2410	27.36	-2.88
2420	28.12	-2.68
2430	29.56	-2.4
2440	29.45	-2.42
2450	29.93	-2.47
2460	29.43	-2.72

2460	29.43	-2.72
2470	28.47	-2.74
2480	28.66	-2.74
2490	29.48	-2.77
2500	27.82	-2.82
2510	25.8	-2.8
2520	24.17	-2.85
2530	22.09	-2.79
2540	20.16	-3.07
2550	18.88	-3.08
2560	17.94	-3.1
2570	16.96	-3.19
2580	16.04	-3.33
2590	14.82	-3.72
2600	15.3	-3.74
2610	14.72	-4.13
2620	13.77	-4.61
2630	13.87	-4.74
2640	14.72	-4.77
2650	14.7	-5.06
2660	15.72	-5.09
2670	15.88	-5.26
2680	15.62	-5.31
2690	15.42	-5.47
2700	15.01	-5.68

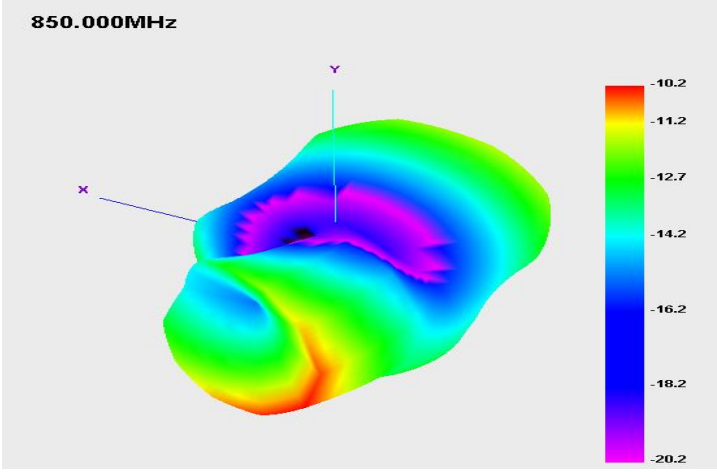
Freq (MHz)	Effi (%)	Gain (dBi)
1550	21.43	-3.06
1555	21.43	-2.97
1560	23.36	-2.46
1565	23.09	-2.45
1570	23.09	-2.39
1575	23.08	-2.33
1580	23.49	-2.1
1585	23.29	-1.95
1590	22.81	-1.9
1595	24.47	-1.47
1600	23.85	-1.43

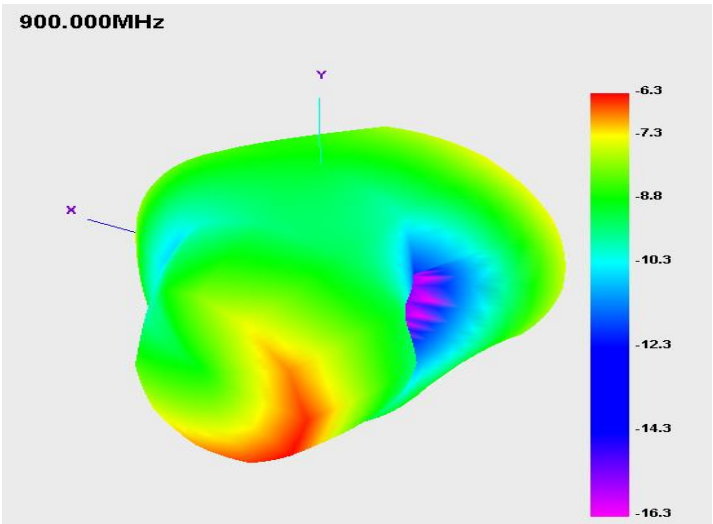
Freq (MHz)	Effi (%)	Gain (dBi)
2400	35.07	-1.33
2410	35.7	-1.18
2420	36.52	-0.97
2430	36.03	-0.99
2440	36.79	-0.83
2450	37.64	-0.63
2460	36.96	-0.68
2470	36.82	-0.54
2480	37.43	-0.39
2490	39.34	-0.04
2500	40.23	0.04

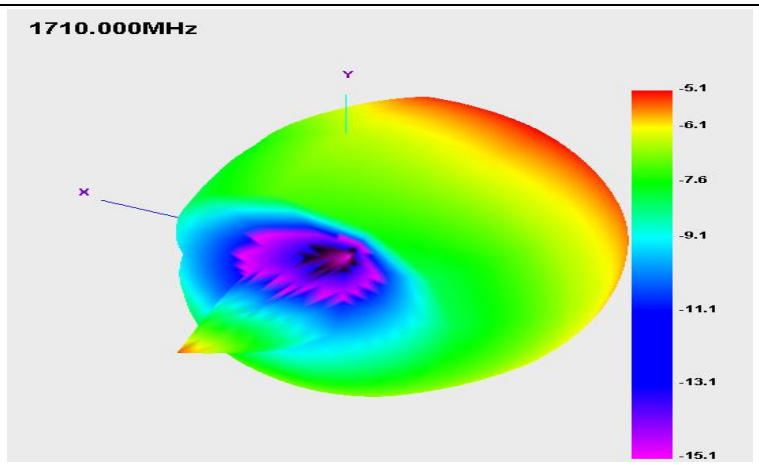
5. Equipment List

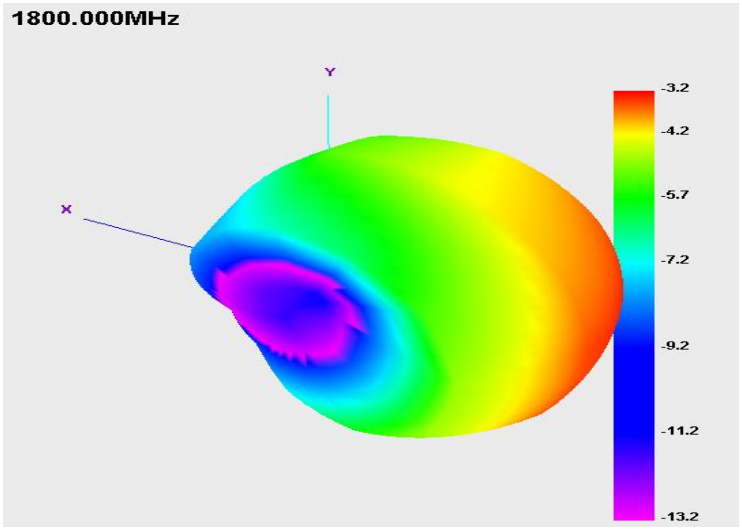
Type of Equipment	Manufacture	Model Number
Network Analyzer	Key sight	E5071C
Switch control System	GTS	RayZone1800
Software	GTS	MaxSign 100 Patten Measurement software

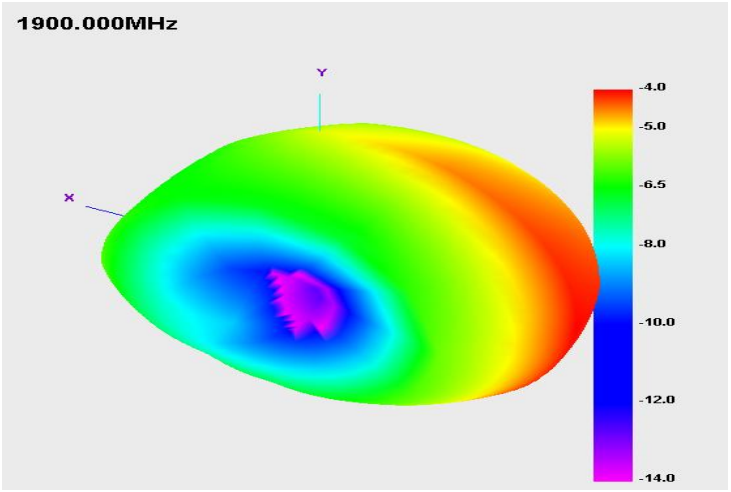
ANNEX A 3-D Patten Plots

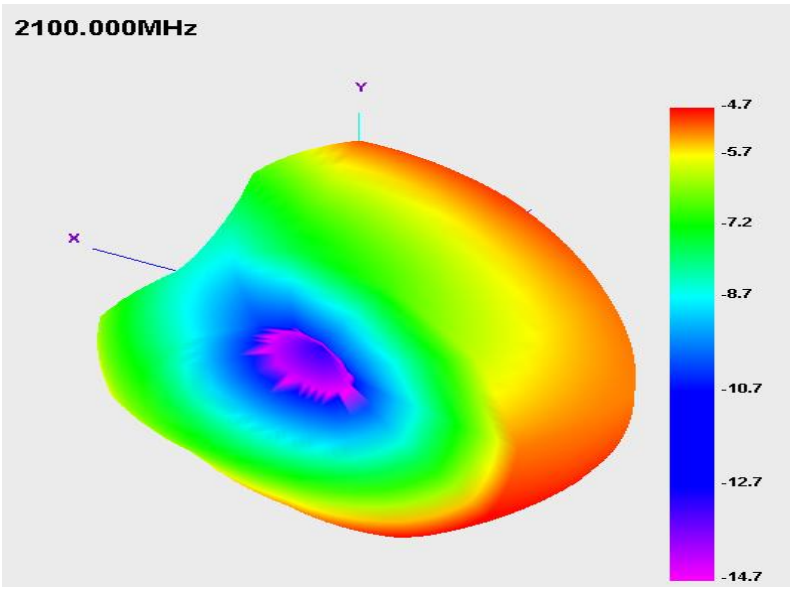


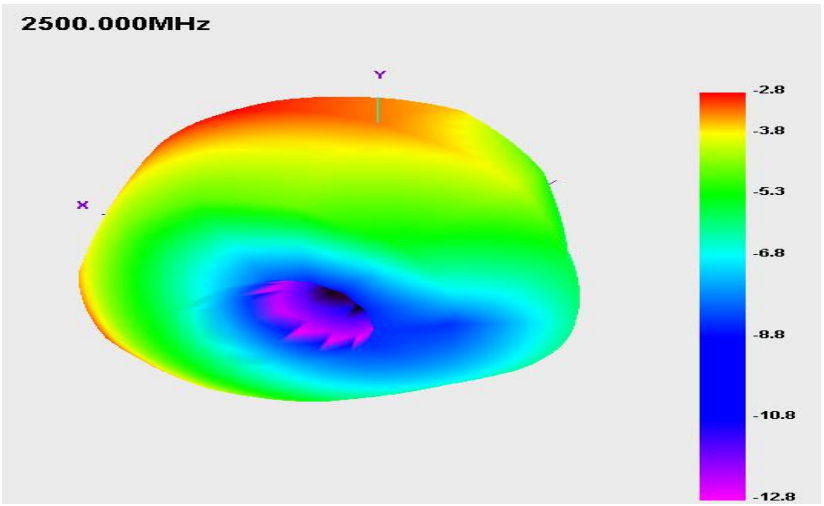


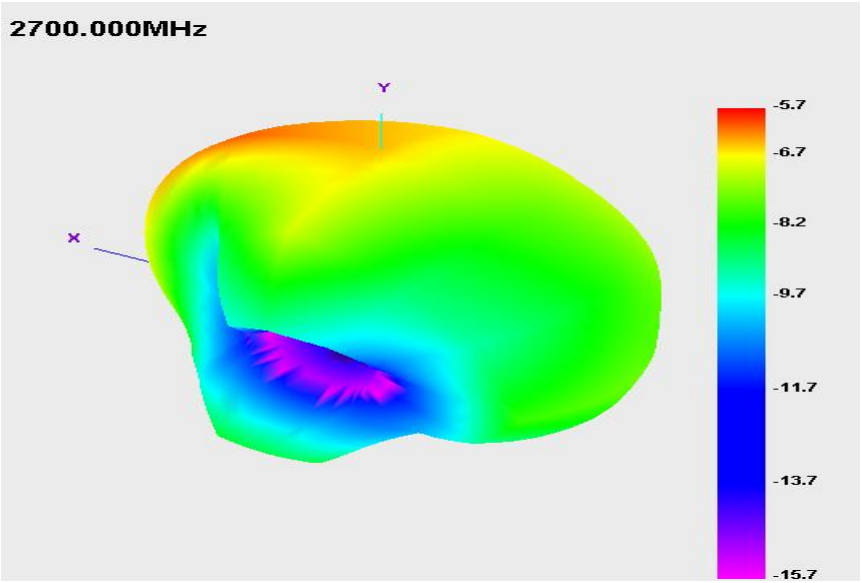

1710.000MHz
Y
X
-5.1
-6.1
-7.6
-9.1
-11.1
-13.1
-15.1


1800.000MHz
Y
X
-3.2
-4.2
-5.7
-7.2
-9.2
-11.2
-13.2


1900.000MHz
Y
X
-4.0
-5.0
-6.5
-8.0
-10.0
-12.0
-14.0

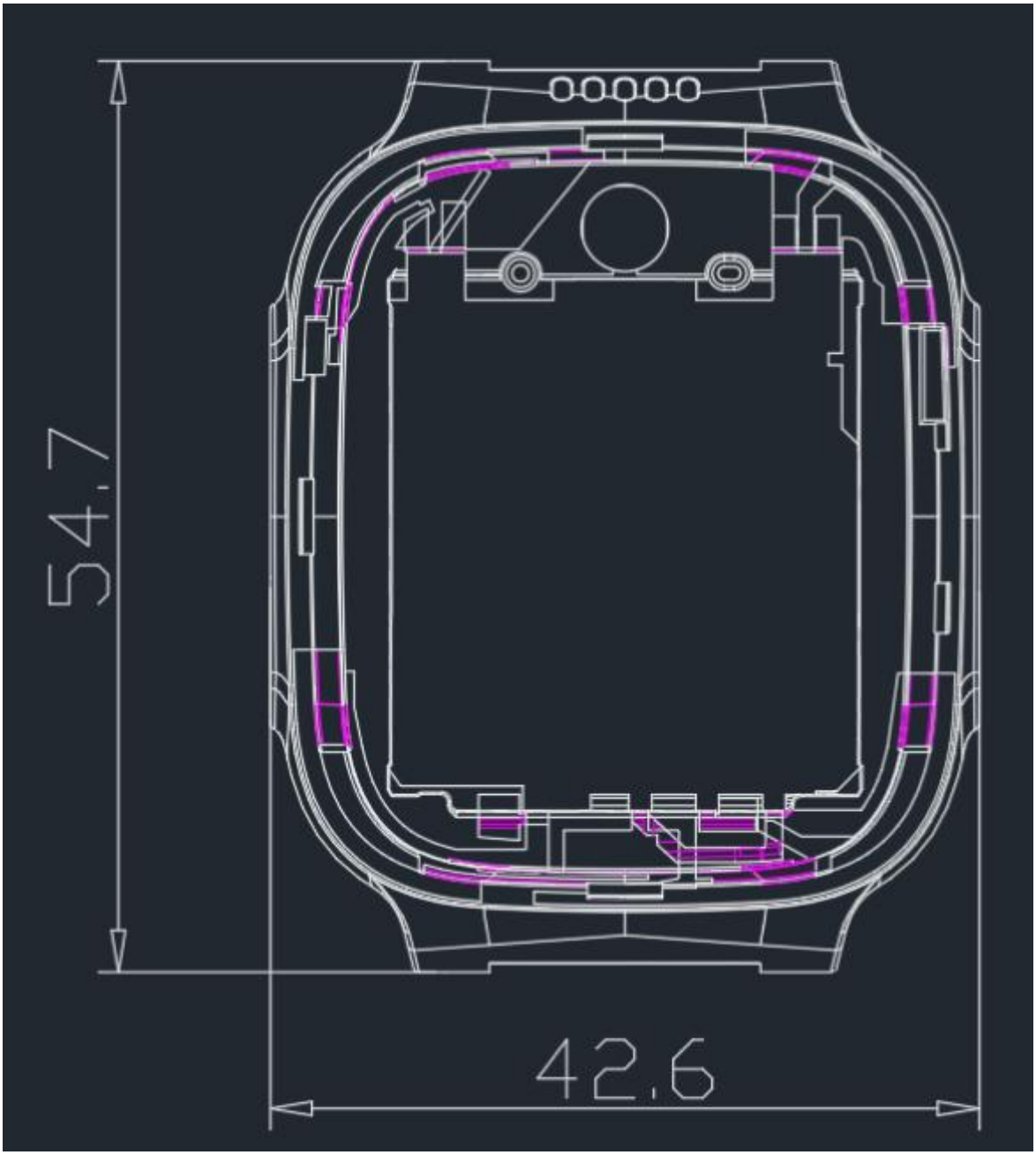

2100.000MHz
Y
X
-4.7
-5.7
-7.2
-8.7
-10.7
-12.7
-14.7


2500.000MHz
Y
X
-2.8
-3.8
-5.3
-6.8
-8.8
-10.8
-12.8


2700.000MHz
Y
X
-5.7
-6.7
-8.2
-9.7
-11.7
-13.7
-15.7

ANNEX B: The EUT Appearance and Test Configuration

B.1 EUT Appearance



B.2 Test Configuration