

OTA TEST REPORT

Applicant Shenzhen General Test System Co., Ltd

Product RayZone1800

Issue Date October 11, 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: Lunkang Yan

Approved by: Zhanghong Lai

Shenzhen Fu Bang Wireless Technology Co., Ltd.

Room 302, Lianjian Industry Park, 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 Maya Communication Equipment Co. LTD

Address: 2nd Floor, Building 1, Guanghui Science Park, Longhua New District,
ShenzhenShenzhen, P.R. China

Contact: Feng Guojun

Telephone: 13425109220

E-mail: 646878854@qq.com

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

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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	MVG
HW Version	RayZone1800 V1.0
SW Version	MaxSign 100
Antenna Type	PCB Antenna
Antenna Manufacturer	Shenzhen Maya Communication Equipment 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

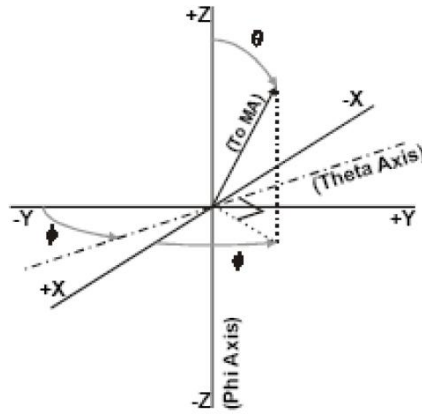
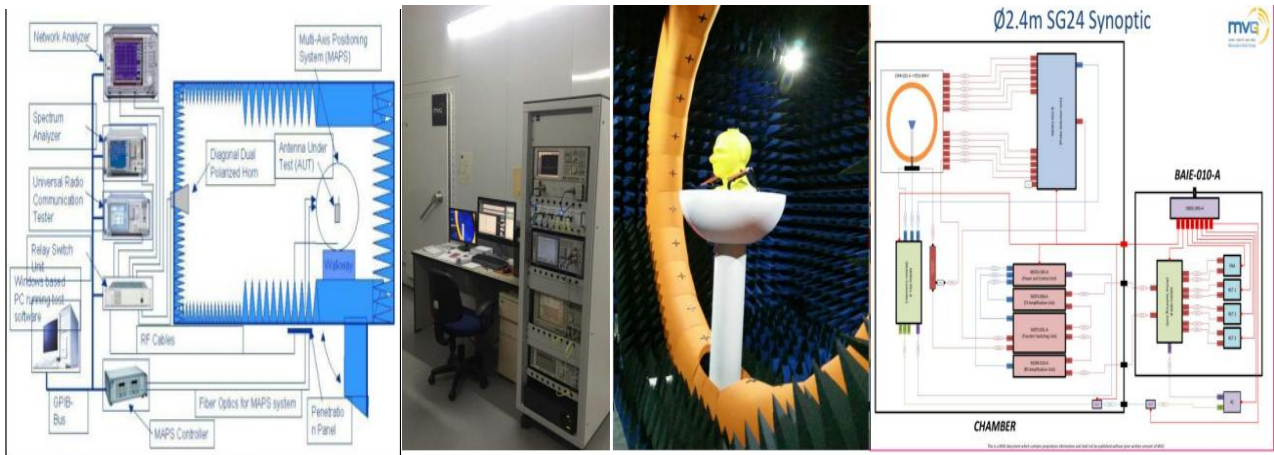


Figure 1 Test coordinate system

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

Test Setup



4. Test Results

4.1 Gain and Efficiency

Frequency (MHz)	Efficiency (%)	AVG Gain (dB)
700	25.89%	-5.87
720	26.77%	-5.72
740	28.69%	-5.42
760	29.89%	-5.24
780	30.61%	-5.14
800	25.37%	-5.96
820	28.37%	-5.47
840	30.70%	-5.13
860	32.81%	-4.84
880	33.88%	-4.70
900	35.71%	-4.47
910	34.38%	-4.64
920	32.22%	-4.92
930	28.21%	-5.50
940	24.97%	-6.03
950	20.22%	-6.94
960	18.29%	-7.38

1700	35.29%	-4.52
1740	38.39%	-4.16
1780	40.82%	-3.89
1820	41.71%	-3.80
1860	42.96%	-3.67
1900	43.82%	-3.58
1940	38.49%	-4.15
1980	36.59%	-4.37
2020	34.34%	-4.64
2060	32.42%	-4.89
2100	34.39%	-4.64
2140	32.62%	-4.87
2180	30.49%	-5.16
2300	28.71%	-5.42
2340	29.39%	-5.32
2380	30.72%	-5.13
2420	32.02%	-4.95
2460	34.82%	-4.58
2500	34.79%	-4.59
2540	33.38%	-4.77
2580	29.62%	-5.28
2620	28.71%	-5.42
2660	27.38%	-5.63
2700	28.11%	-5.51

Frequency (MHz)	Efficiency (%)	AVG Gain (dBi)
1570	39.83%	1.14
1571	39.92%	1.16
1572	39.39%	1.15
1573	39.36%	1.15
1574	39.16%	1.15
1575	40.83%	1.18
1576	40.78%	1.18
1577	40.88%	1.19
1578	40.45%	1.18
1579	40.14%	1.16
1580	40.91%	1.20

Frequency (MHz)	Efficiency (%)	AVG Gain (dB)
2400	30.71%	0.90
2410	32.07%	0.93
2420	33.82%	0.95
2430	34.41%	0.97
2440	35.89%	0.98
2450	38.47%	1.10
2460	37.86%	1.00
2470	35.16%	0.98
2480	35.59%	0.98
2490	35.56%	0.97
2500	34.18%	0.96

Frequency (MHz)	Efficiency (%)	AVG Gain (dBi)
5150	34.49%	1.10
5180	35.41%	1.11
5210	35.27%	1.11
5240	36.56%	1.12
5270	36.48%	1.12
5300	37.37%	1.13
5330	36.28%	1.12
5360	37.38%	1.13
5390	38.51%	1.15
5420	39.19%	1.16
5450	39.78%	1.17
5480	40.64%	1.18
5510	41.27%	1.18
5540	42.35%	1.20
5570	41.46%	1.20
5600	40.81%	1.19
5630	40.59%	1.18
5660	39.49%	1.16
5690	38.69%	1.15
5720	37.59%	1.14
5750	37.38%	1.13
5780	36.59%	1.12
5810	36.49%	1.12
5840	35.59%	1.11
5850	35.69%	1.11

5. Equipment List

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

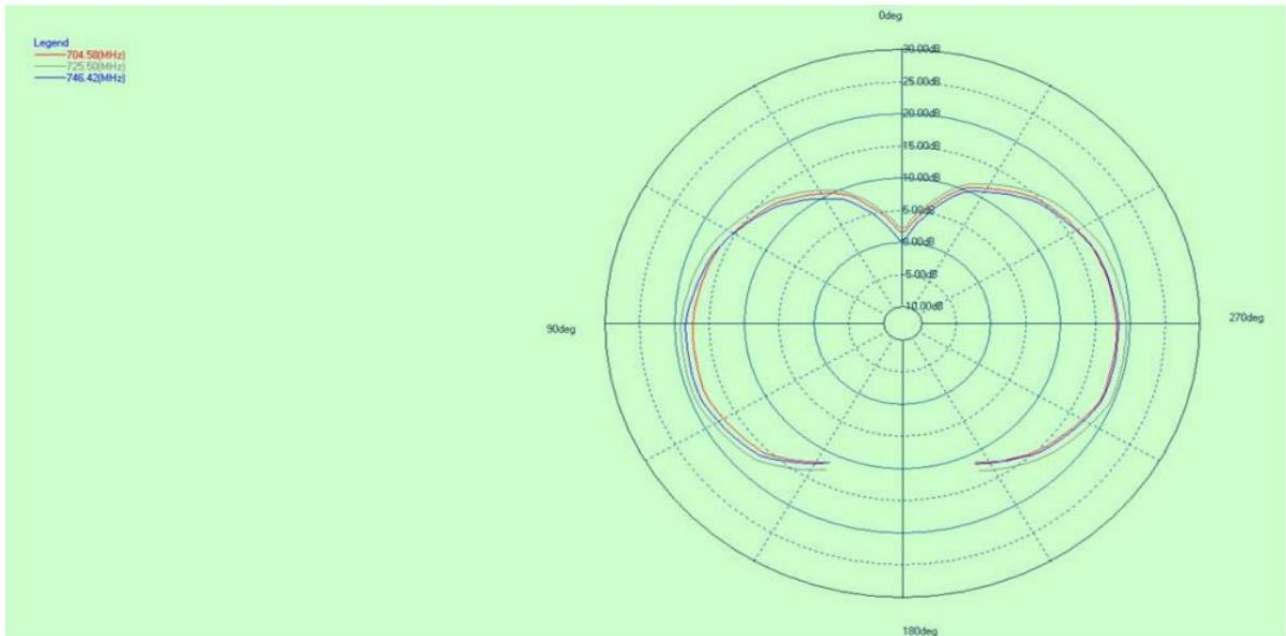
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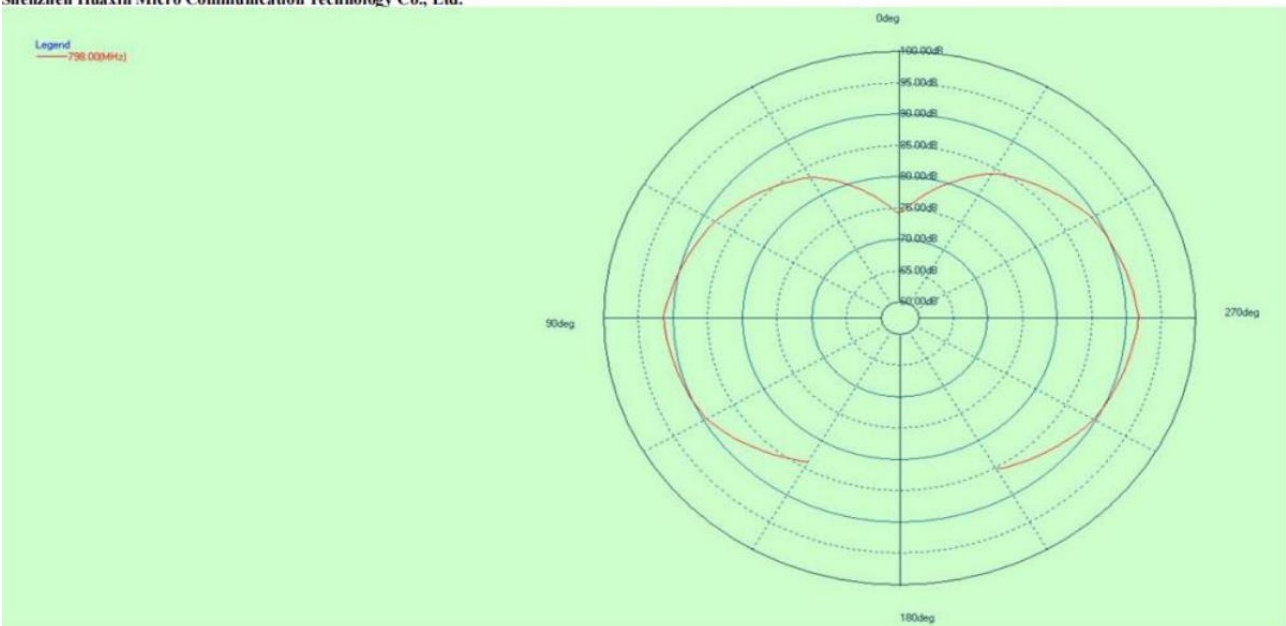
ANNEX A 3-D Patten Plots

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FS pattern 700M-800M

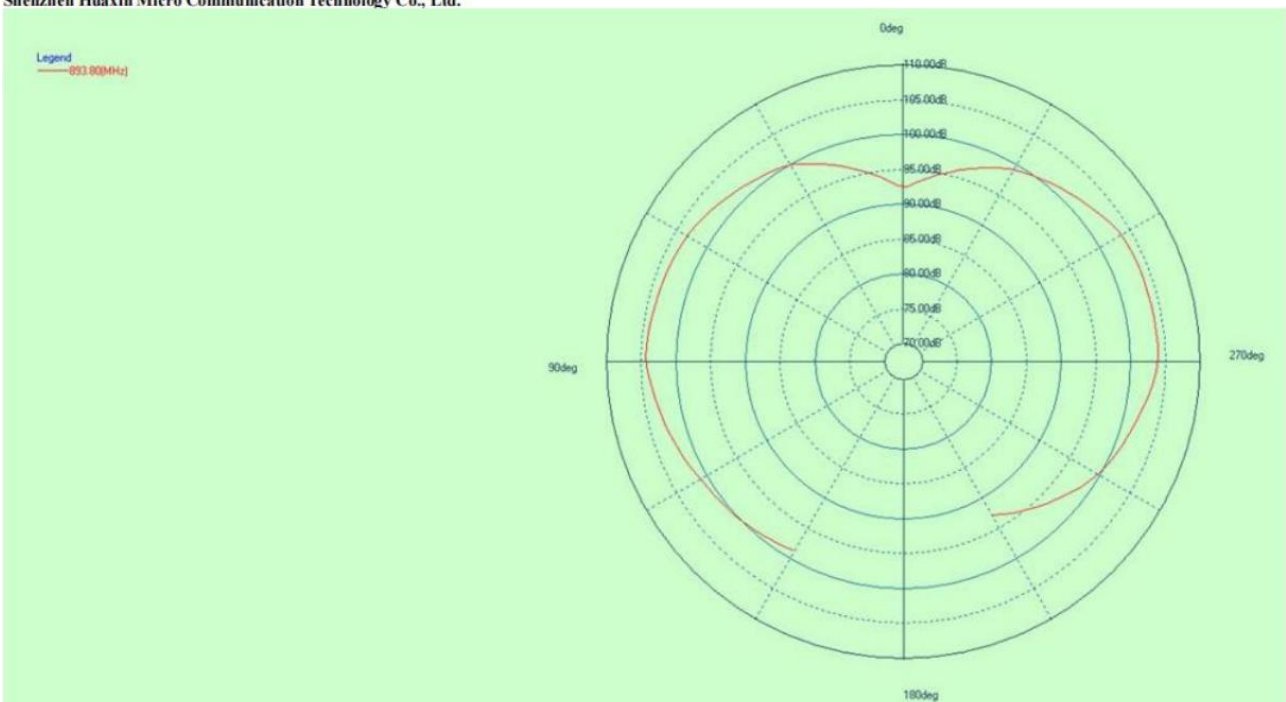
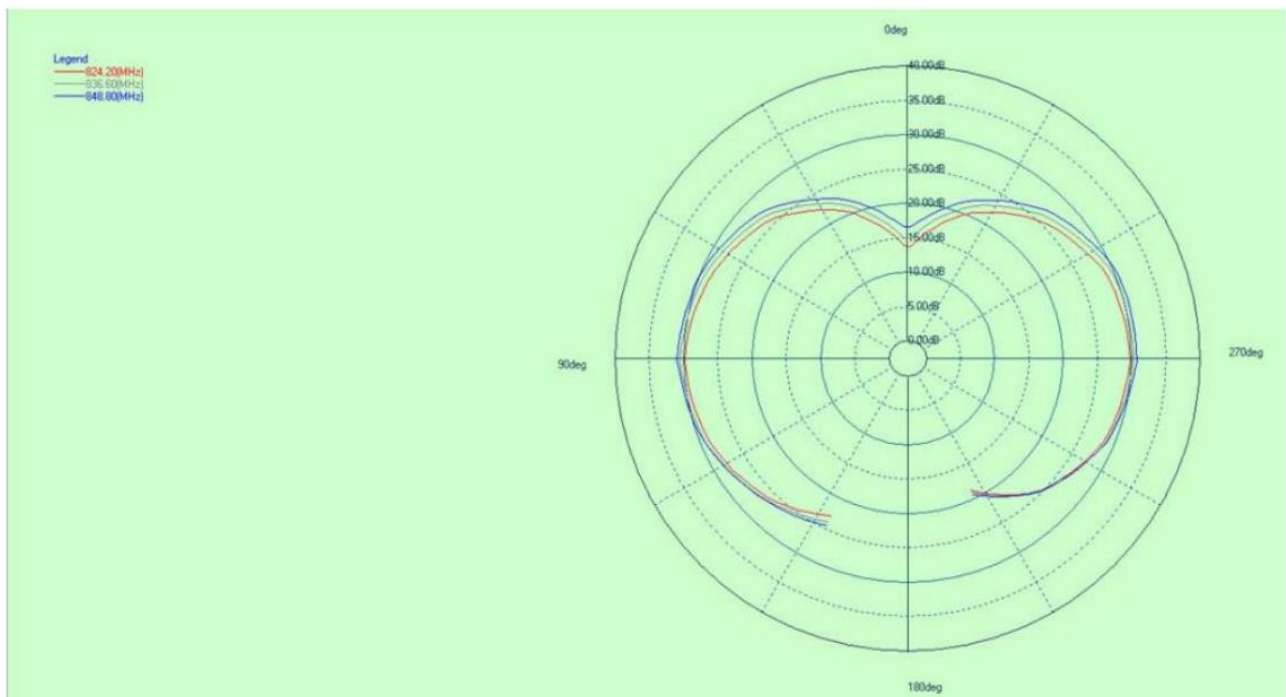


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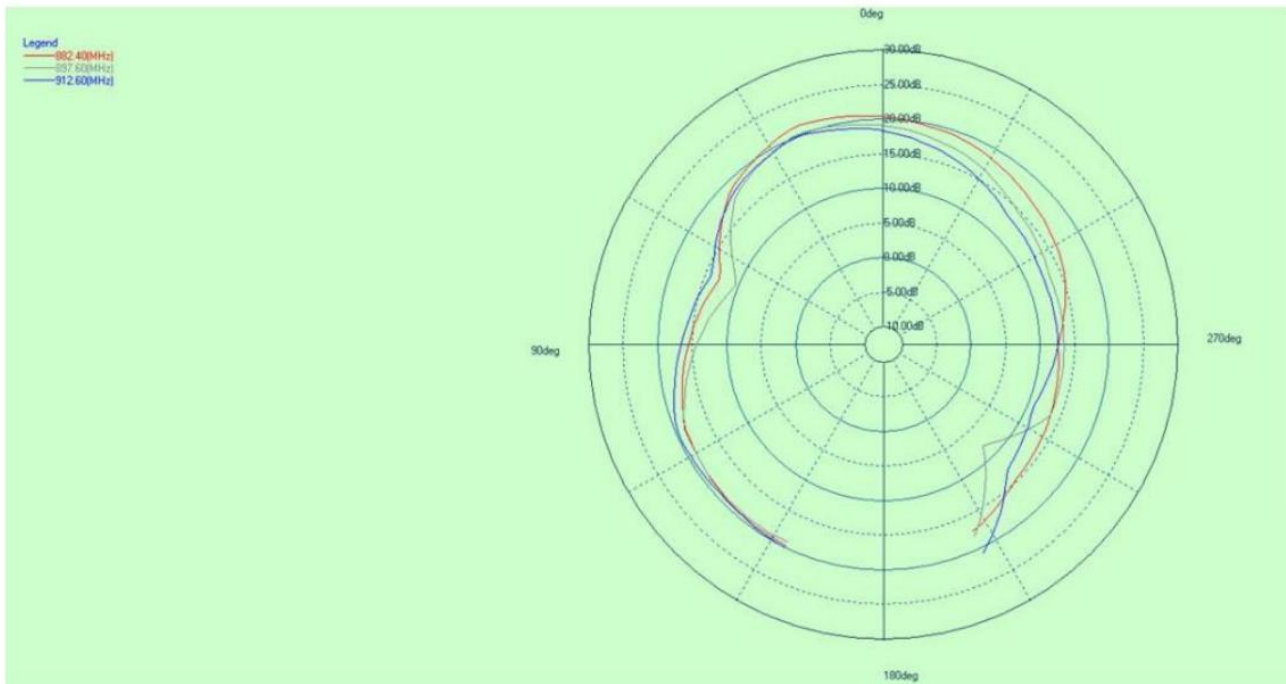


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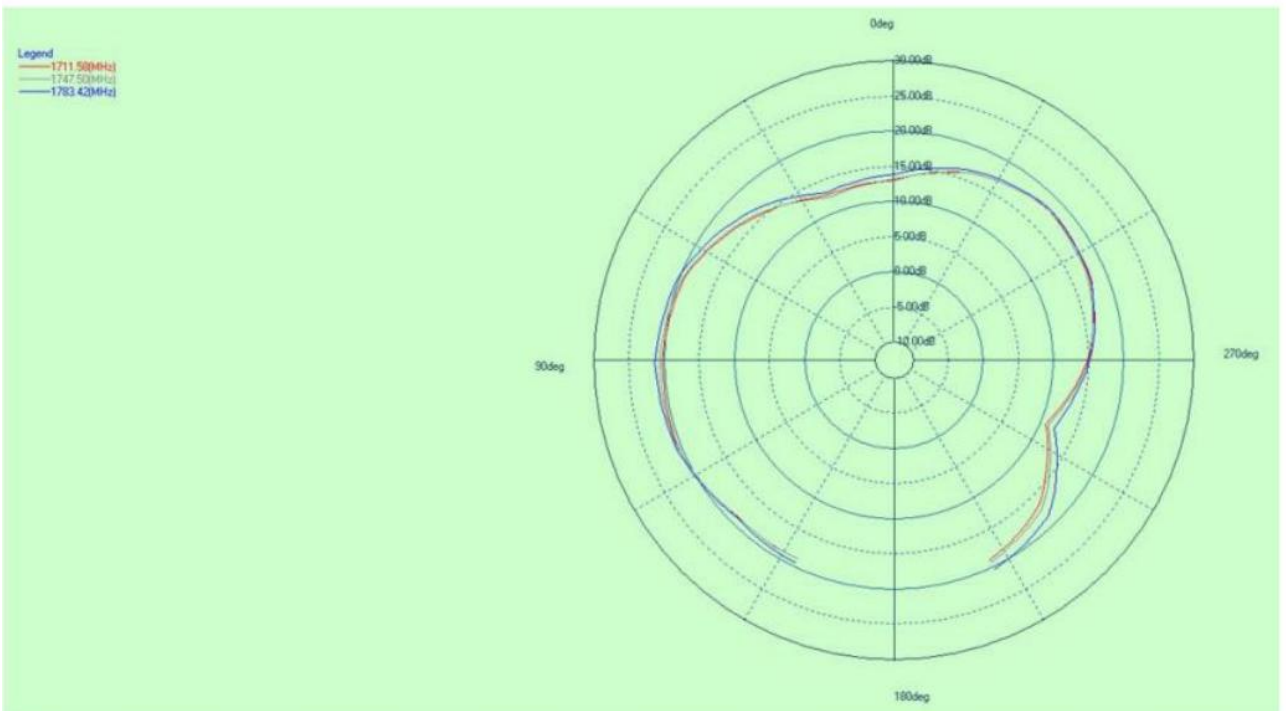
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900M



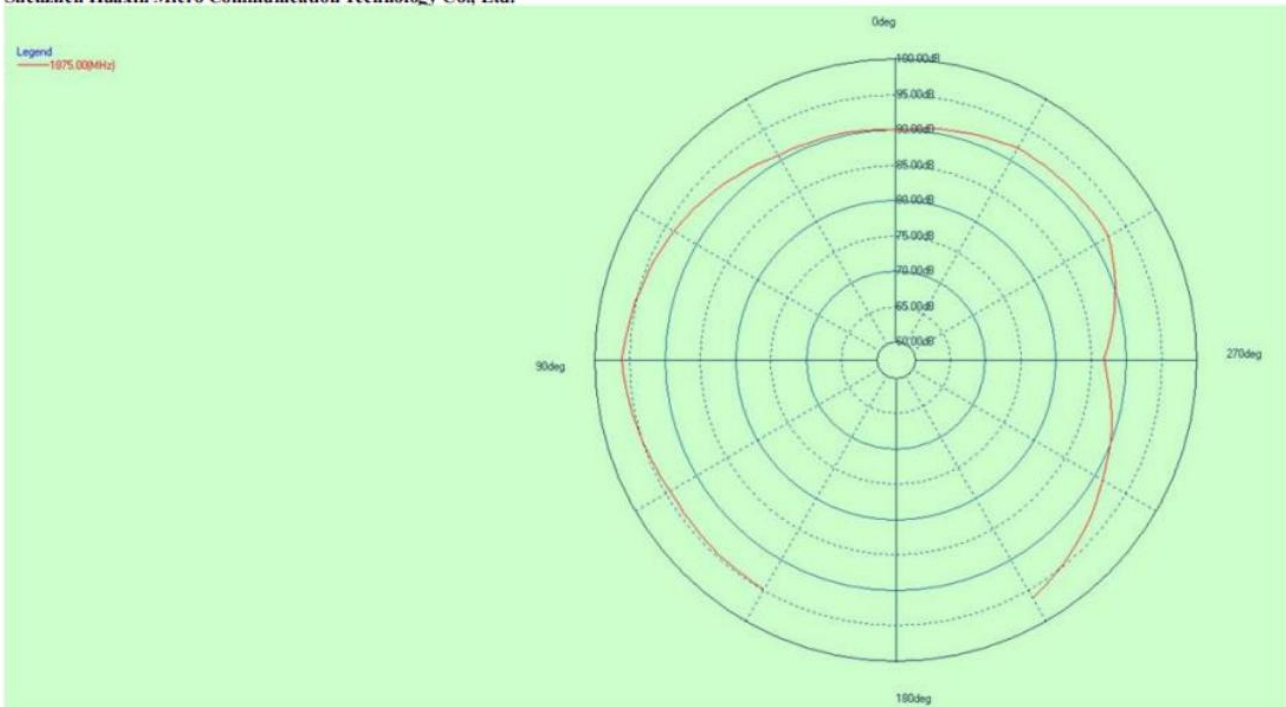
Shenzhen Huaxin Micro Communication Technology Co., Ltd.
1710M-2100M



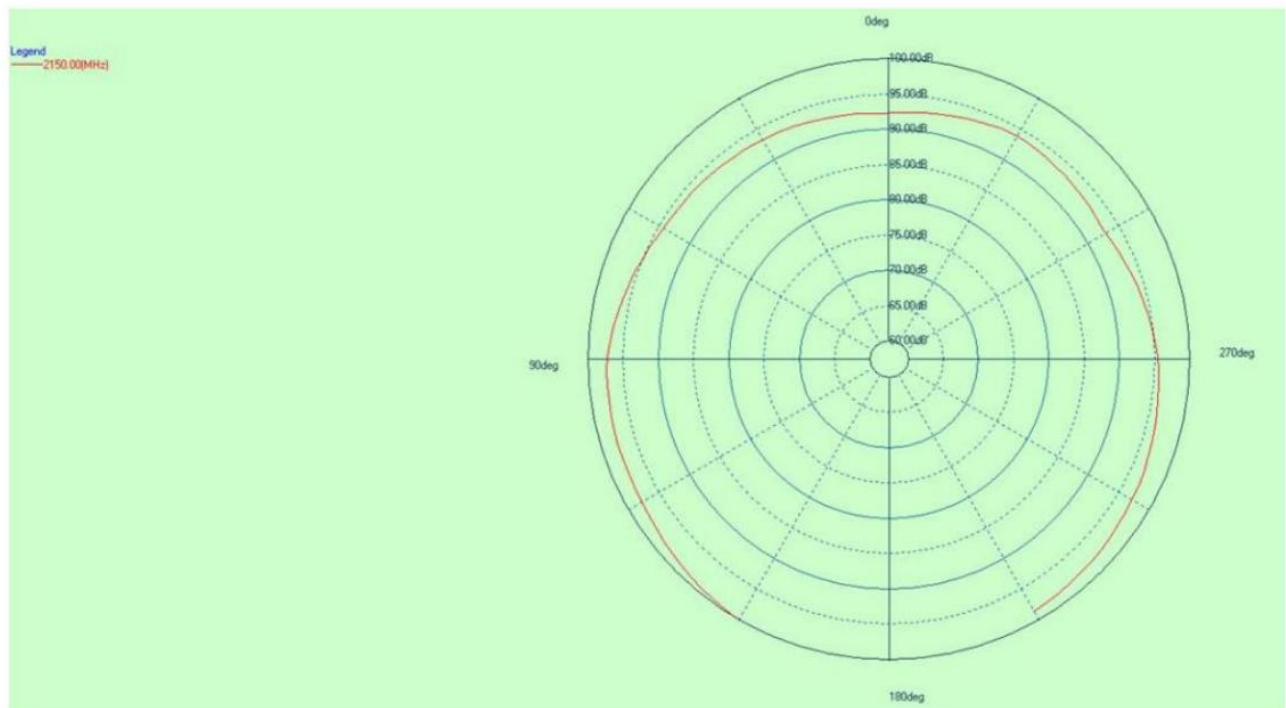
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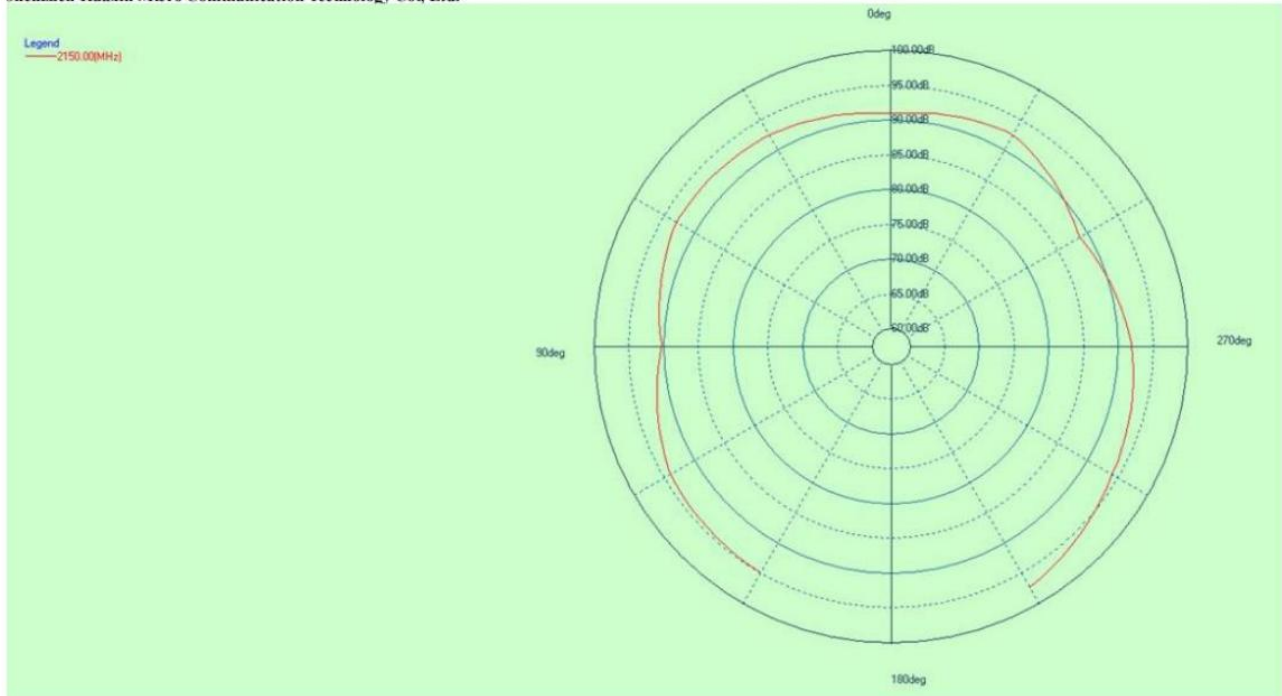
Shenzhen Huaxin Micro Communication Technology Co., Ltd.
2100M-2400M



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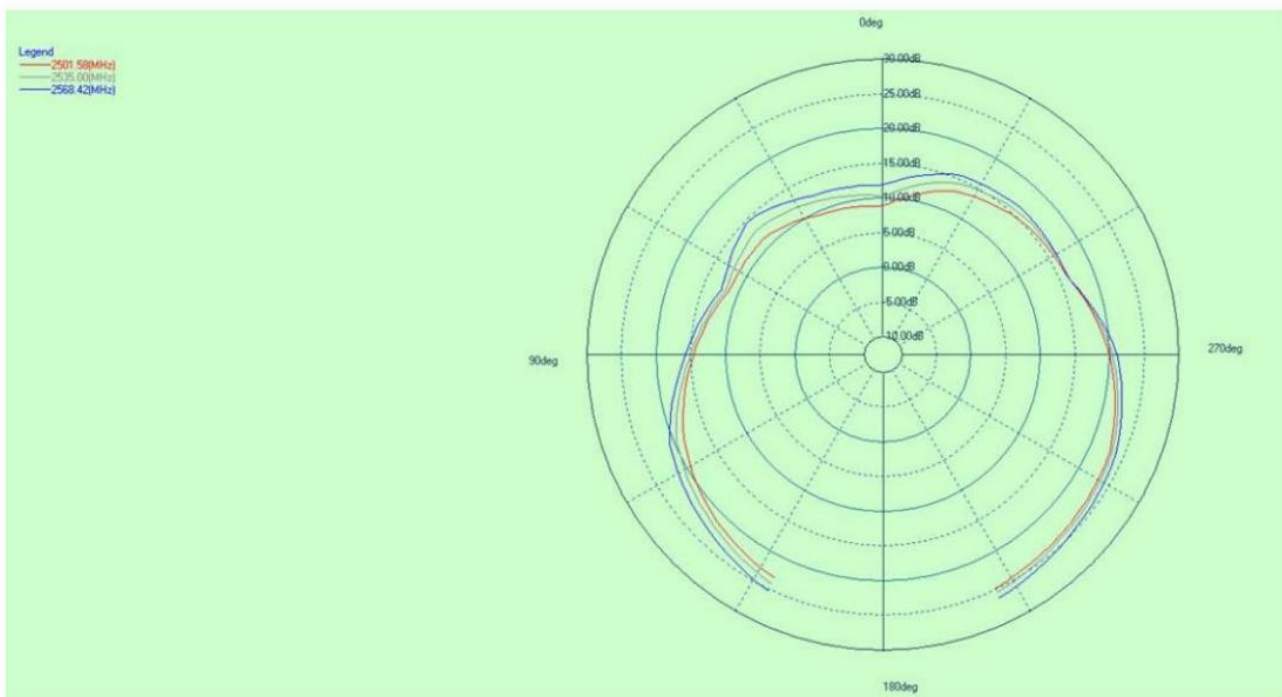
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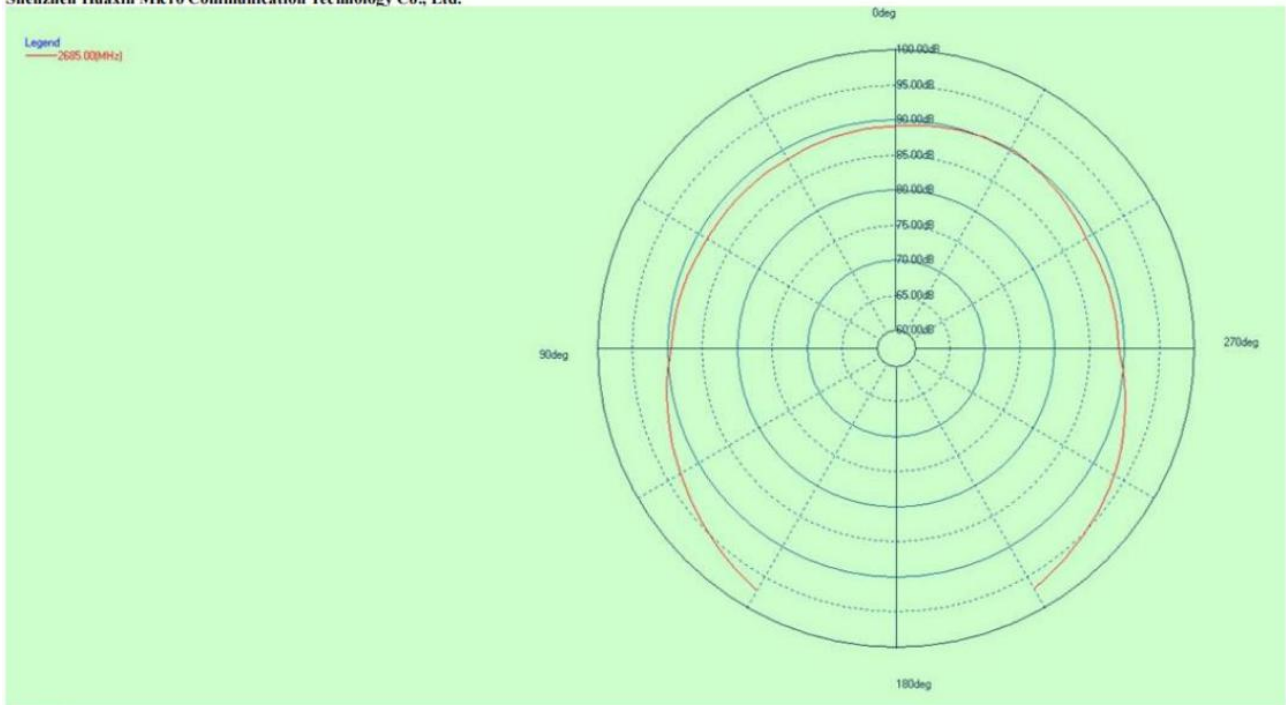
2400M-2700M



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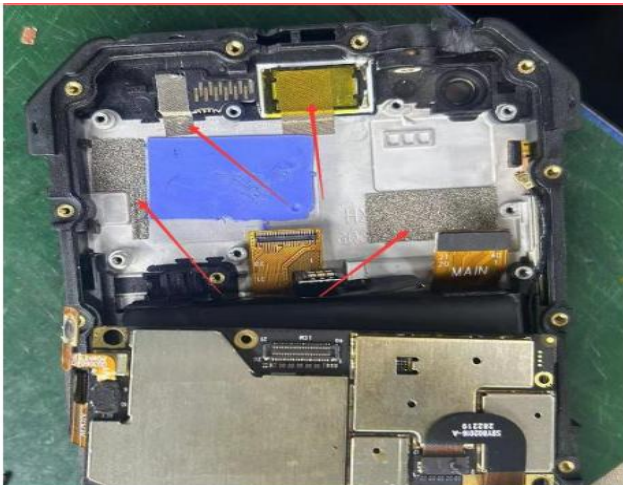


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ANNEX B: The EUT Appearance and Test Configuration

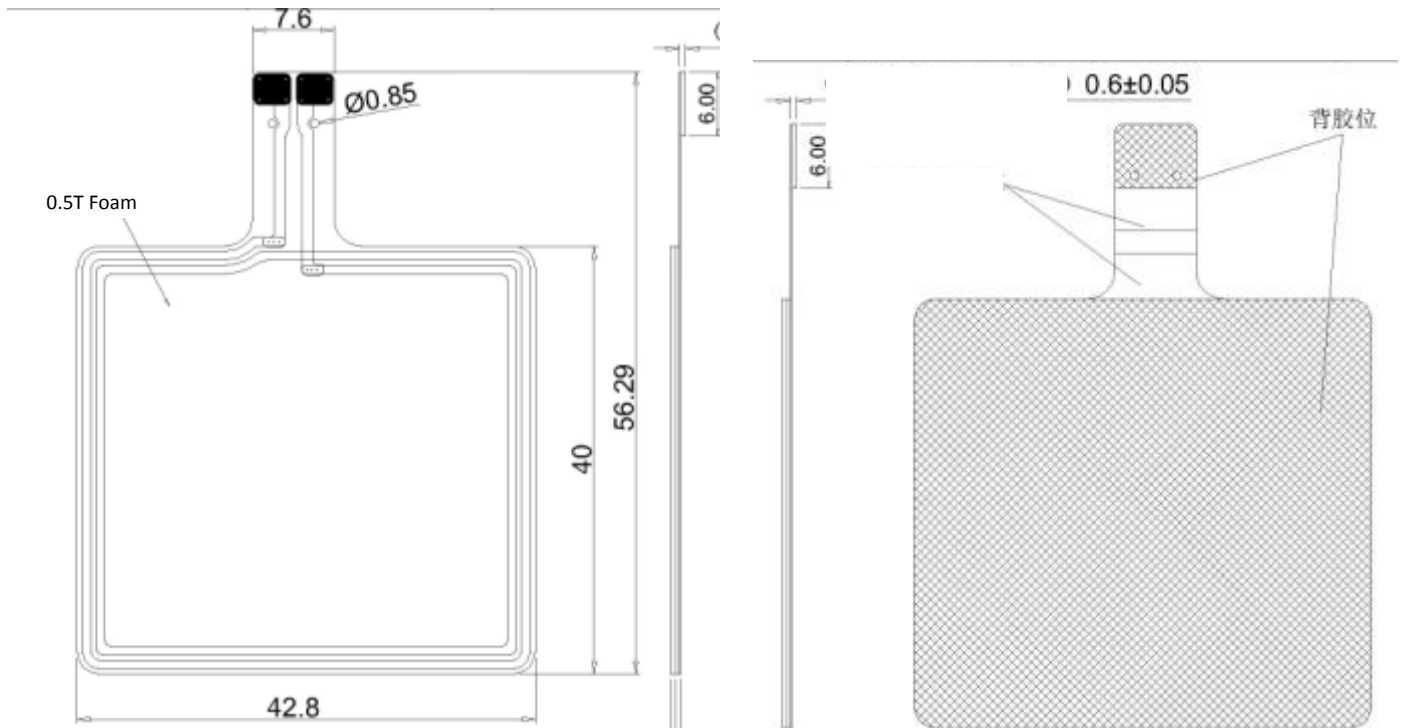
B.1 EUT Appearance



NFC antenna size diagram

Unit: mm

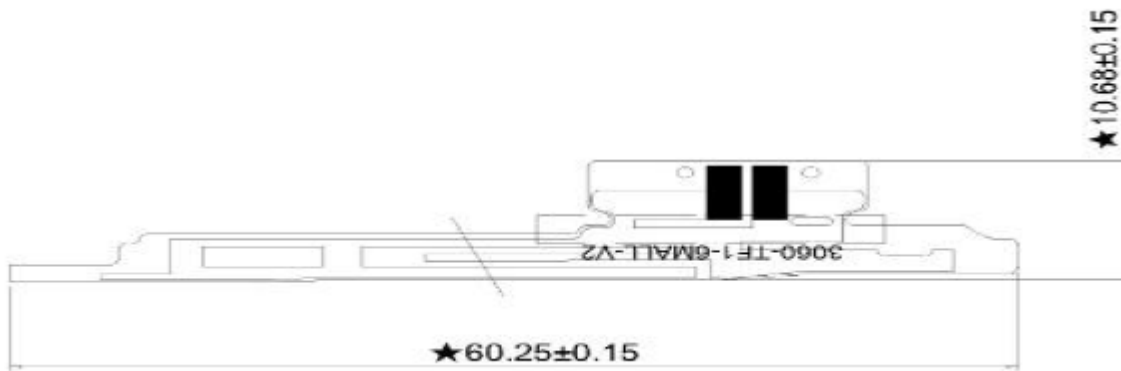
Material: Electrolytic copper+Pi



GSM/WCDMA/LTE PIFA Antenna size diagram

Unit:mm

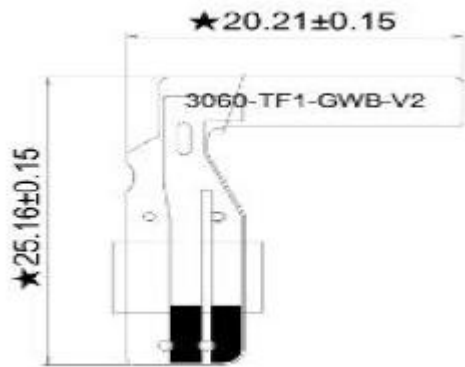
Material: Electrolytic copper+Pi



GPS/WIFI/BT PIFA Antenna size diagram

Unit:mm

Material: Cu+Pi



LTE DIV PIFA Antenna size diagram

Unit: mm

Material: Cu+Pi

