

Antenna Information

Antenna picture	Please refer to the internal photo.
Antenna Type	Internal antenna
Antenna Peak Gain	WIFI: 1.59dBi BLE: 3.43dBi BT: 4.26dBi
Operating Band	2400 MHz ~ 2483.5 MHz
Test laboratory name and Address	IoT Antenna Test Laboratory, 3 / A, LEEDARSON LIGHTING CO., LTD. Xingtai Industrial Park, Changtai Economic Development Zone, Zhangzhou, 363900, China
Antenna Manufacturer	LEEDARSON LIGHTING CO., LTD.
Model name	
DUT photo	Please refet to the external photo.
Test Date	2024-02-03
Test Conductor	Fenghuijuan

Test System

The SY-16 OTA system and RayZone2800 OTA system are anechoic chambers, which can measure antenna passive data such as antenna efficiency, antenna gain, and 2D&3D pattern. The systems are shown as follows:



Figure 1 SY-16 OTA system

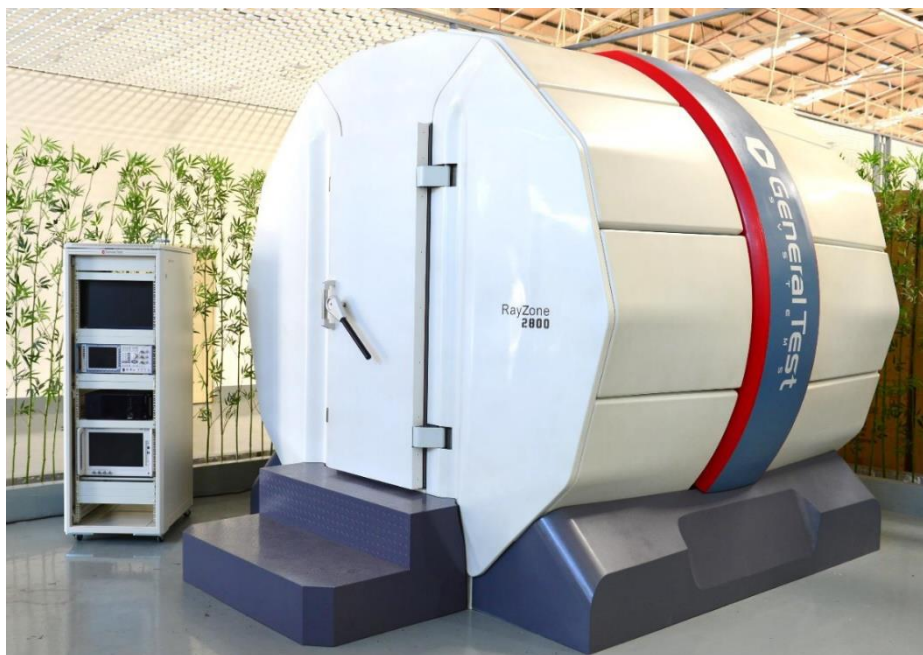


Figure 2 RayZone2800 OTA system

Equipment List

Table 1 Equipment List

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
<input type="checkbox"/>	Network Analyzer	Keysight	E5071C	MY46527808	2024/1/4	2025/1/3
<input checked="" type="checkbox"/>	Network Analyzer	Keysight	E5071C	MY46108051	2023/4/20	2024/4/19
<input type="checkbox"/>	Anechoic Chamber	Sunyield	SY-16	SI1727	2023/5/10	2024/5/9
<input checked="" type="checkbox"/>	Anechoic Chamber	General Test System	RayZone2800	CT10121244 B5079	2023/5/20	2024/5/19

Test Method

Table 2 Test Method

Name	Antenna Performance			
Parameter	Radiation Efficiency			
Test Method	IEEE Standard Test Procedures for Antennas			
Standard No.	ANSI/IEEE Std 149-2021			
Test Software	PMS-V2.8.5	<input type="checkbox"/>	MaxSign-V1.4.3	<input checked="" type="checkbox"/>

WIFI Test Result

Efficiency and Gain

Table 1 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	1.59	-7.34	18.46
2410	1.40	-7.62	17.29
2420	1.32	-7.83	16.50
2430	1.18	-7.97	15.97
2440	1.02	-7.97	15.98
2450	0.79	-8.00	15.85
2460	0.21	-8.18	15.21
2470	-0.40	-8.47	14.21
2480	-0.59	-8.63	13.71

Radiation Pattern

Table 2 Product coordinates

Product Coordinates
Please refer to the antenna setup photo.

Table 3 3D radiation pattern

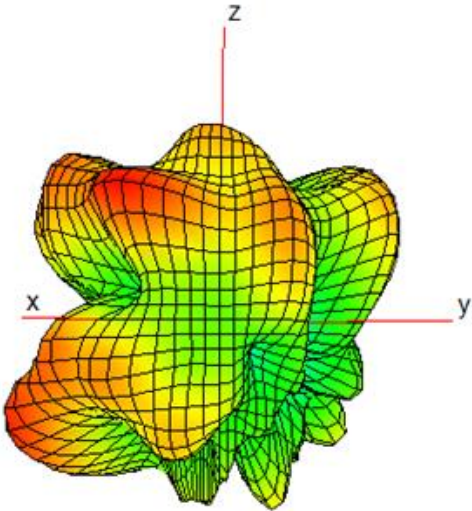
3D Radiation Pattern at 2450MHz


Table 4 Radiation pattern in XY Plane

2D Radiation Pattern ($\theta = 90^\circ$, XY Plane)
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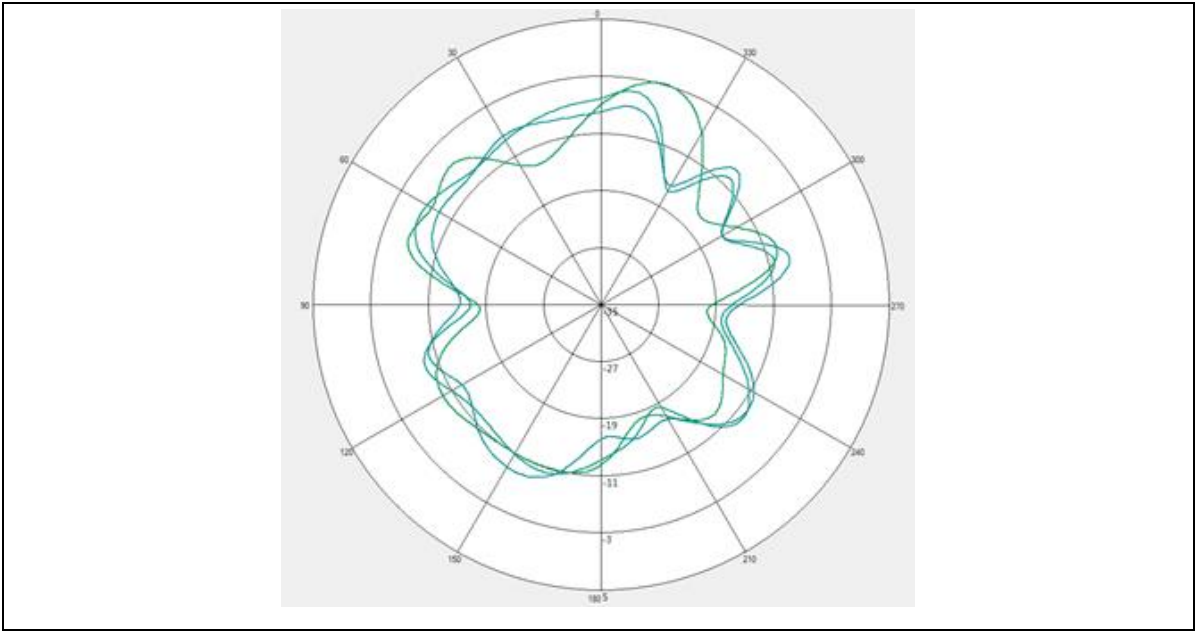


Table 5 Radiation pattern in XZ Plane

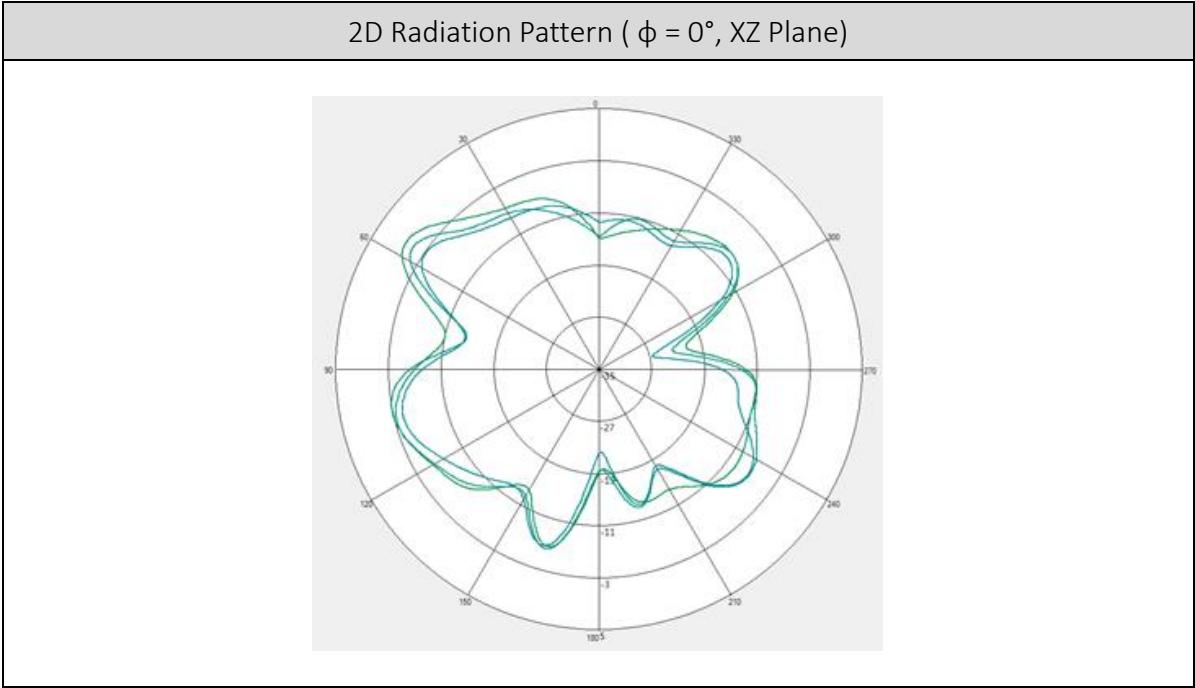
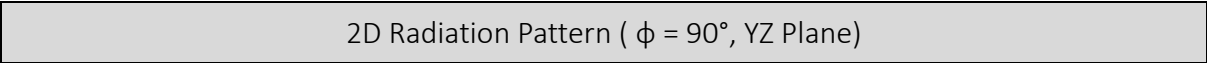
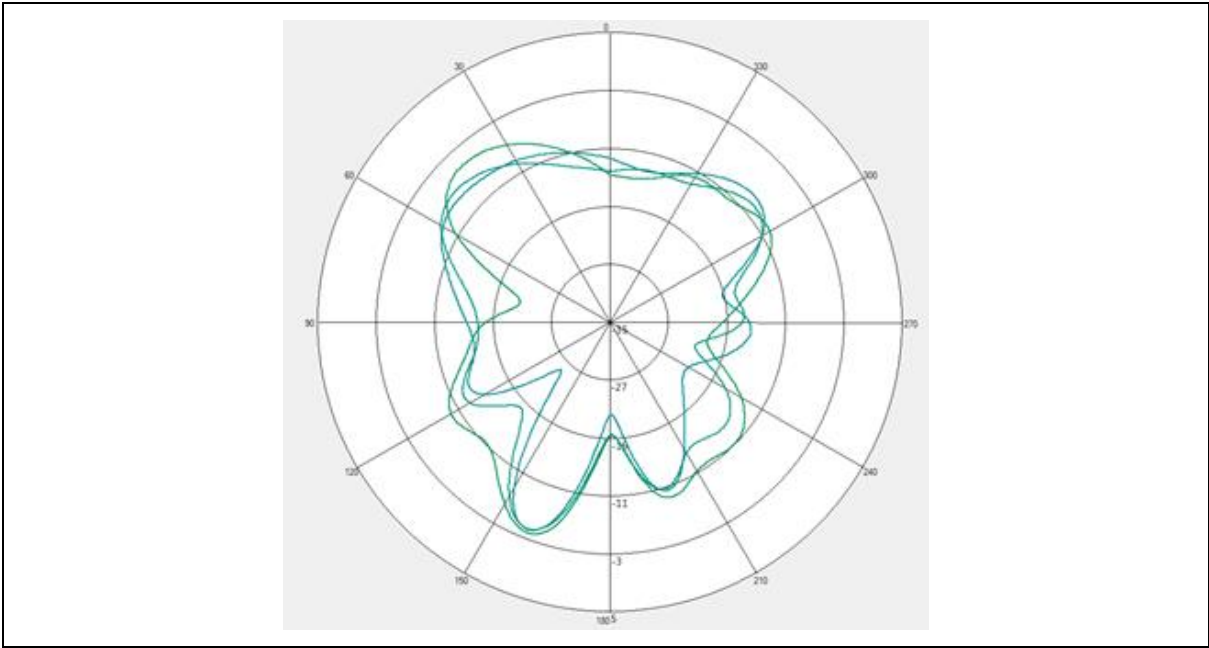


Table 6 Radiation pattern in YZ Plane





BLE Test Result

Efficiency and Gain

Table 1 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	2.68	-4.69	33.99
2410	2.84	-4.88	32.52
2420	2.91	-5.03	31.39
2430	2.72	-5.10	30.87
2440	2.53	-4.99	31.72
2450	2.44	-4.80	33.10
2460	2.58	-4.63	34.47
2470	3.01	-4.46	35.85
2480	3.43	-4.32	36.97

Radiation Pattern

Table 2 Product coordinates

Product Coordinates

please refer to the antenna setup photo.	
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Table 3 3D radiation pattern

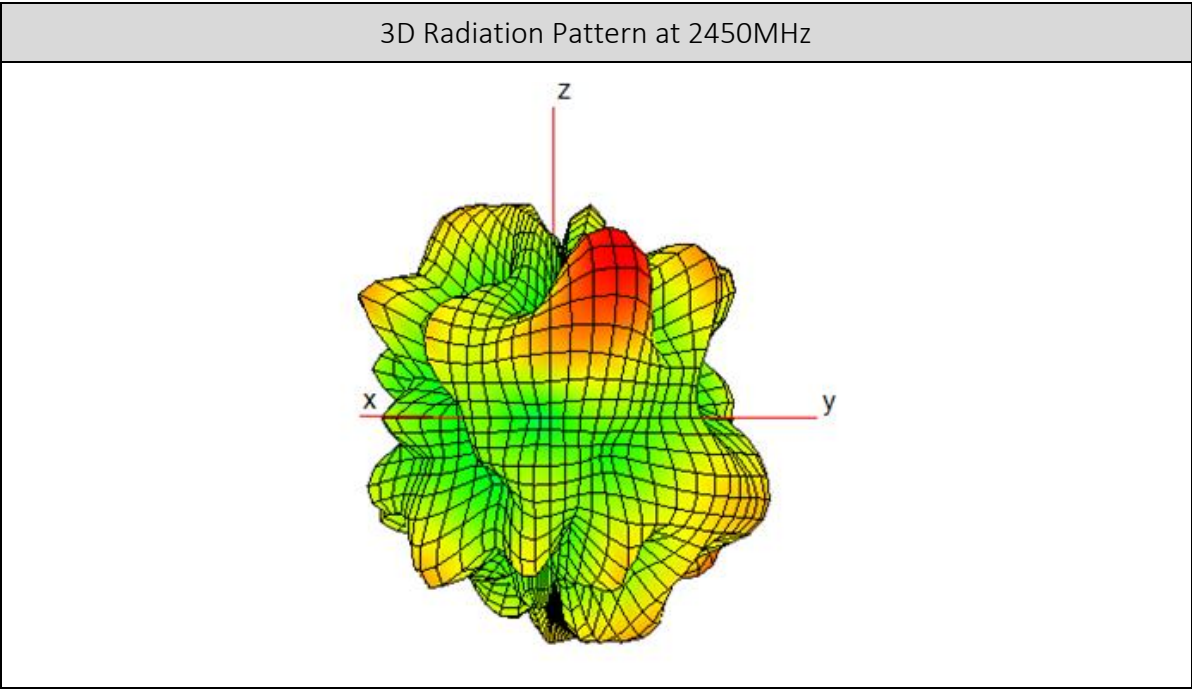
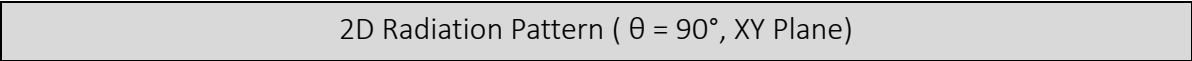


Table 4 Radiation pattern in XY Plane



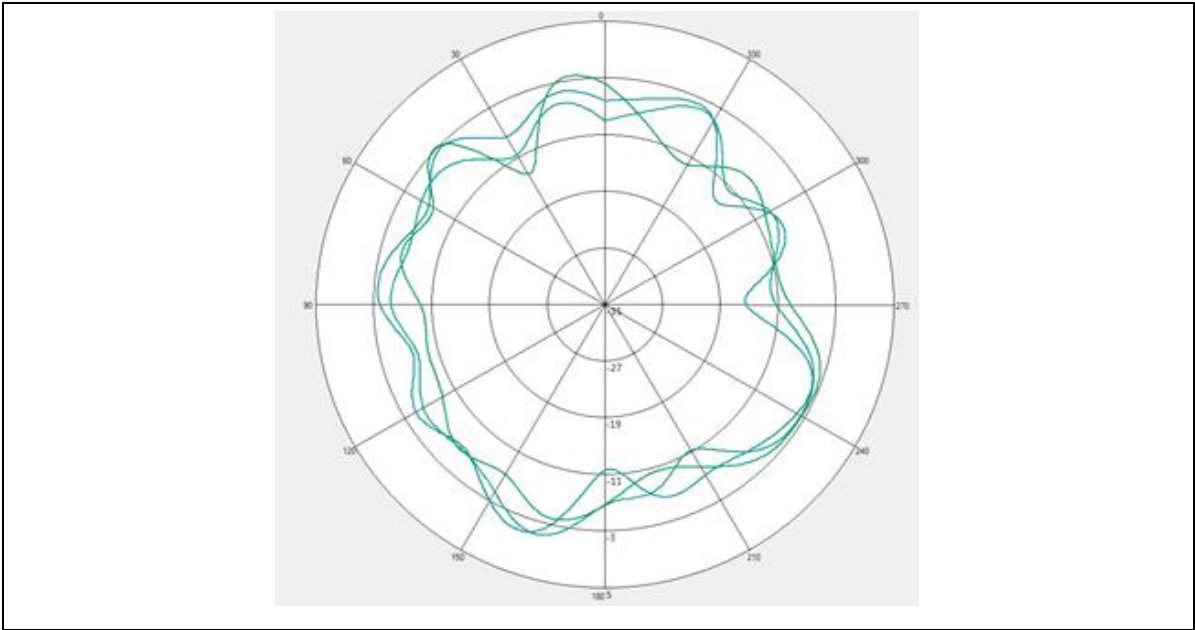


Table 5 Radiation pattern in XZ Plane

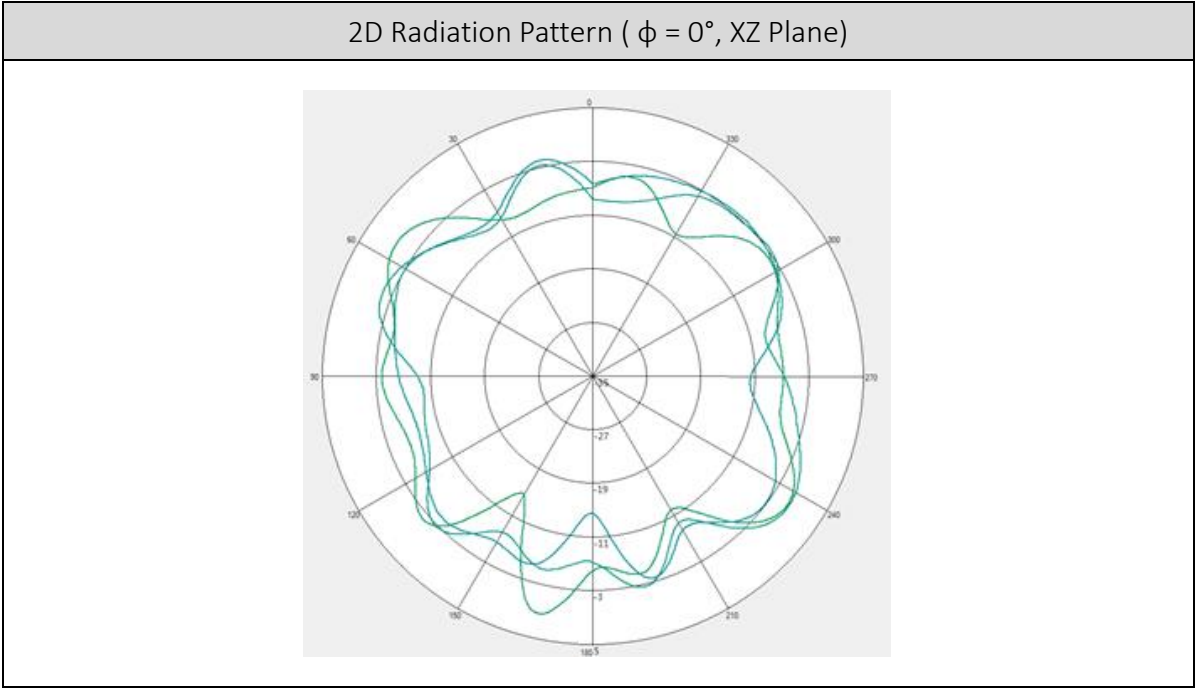
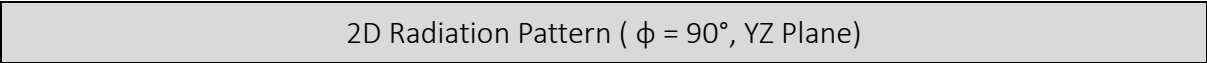
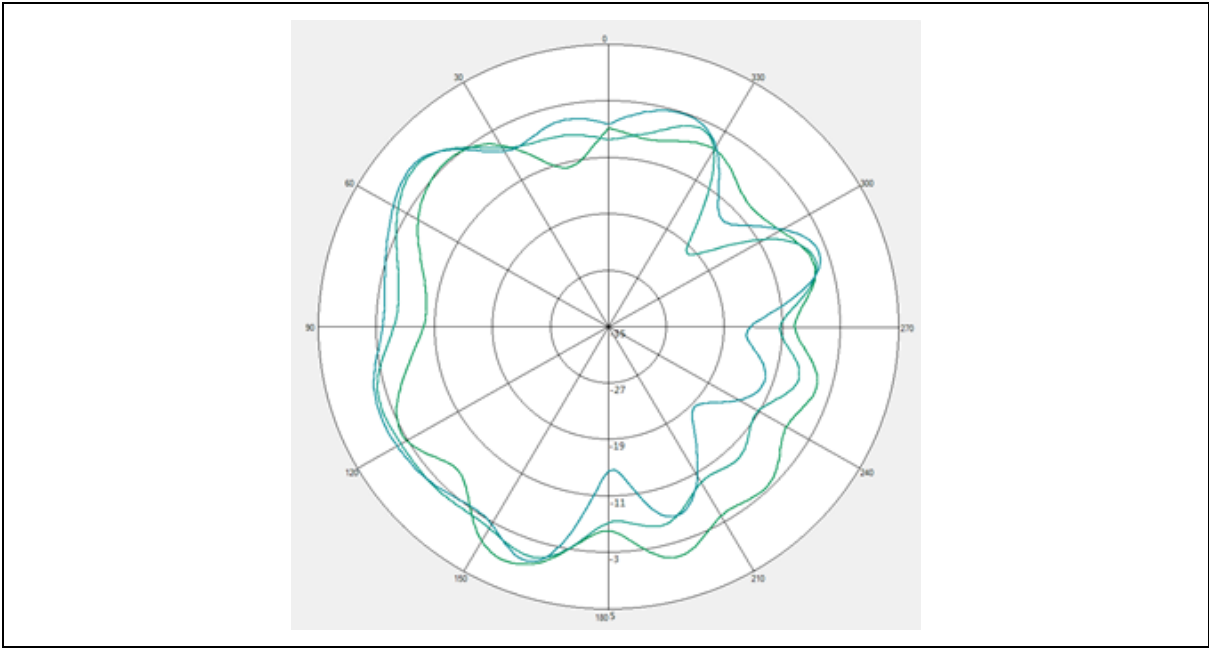


Table 6 Radiation pattern in YZ Plane





BT Test Result

Efficiency and Gain

Table 1 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	4.14	-2.05	62.31
2410	3.96	-2.20	60.20
2420	3.96	-2.24	59.71
2430	3.99	-2.18	60.52
2440	4.09	-2.05	62.35
2450	4.26	-1.94	63.93
2460	4.20	-1.99	63.24
2470	4.11	-2.06	62.29
2480	4.07	-2.07	62.03

Radiation Pattern

Table 2 Product coordinates

Product Coordinates


<p>please refer to antenna setup photo.</p> 	
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Table 3 3D radiation pattern

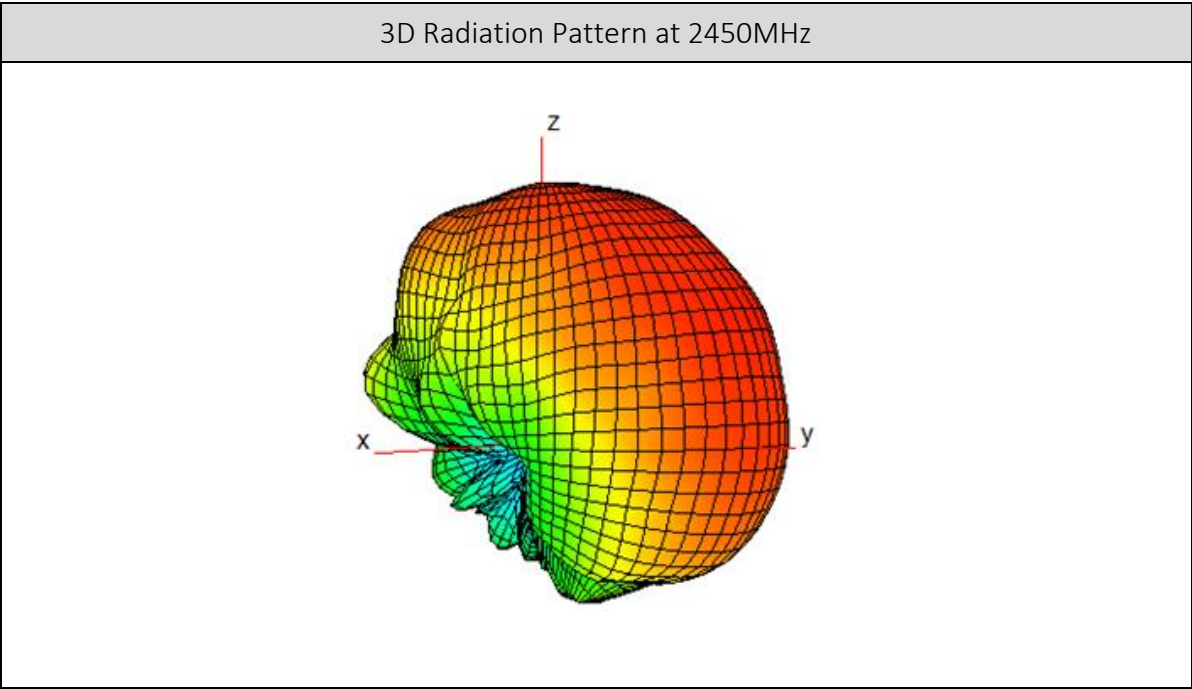
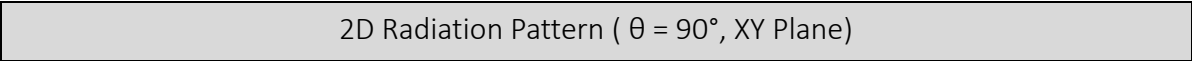


Table 4 Radiation pattern in XY Plane



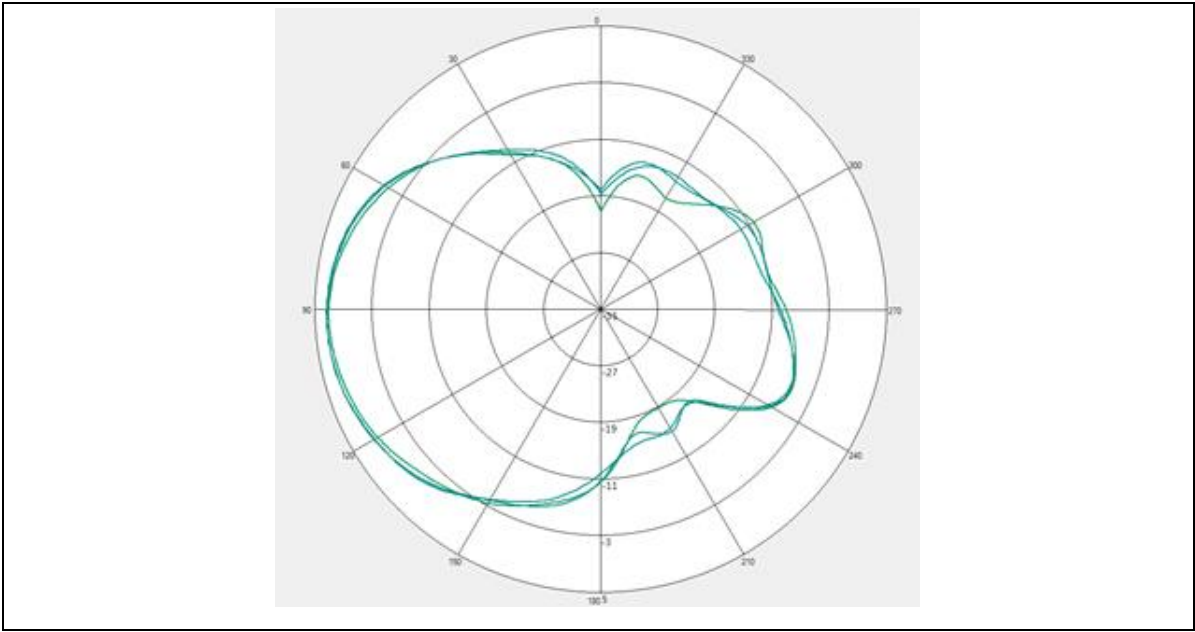


Table 5 Radiation pattern in XZ Plane

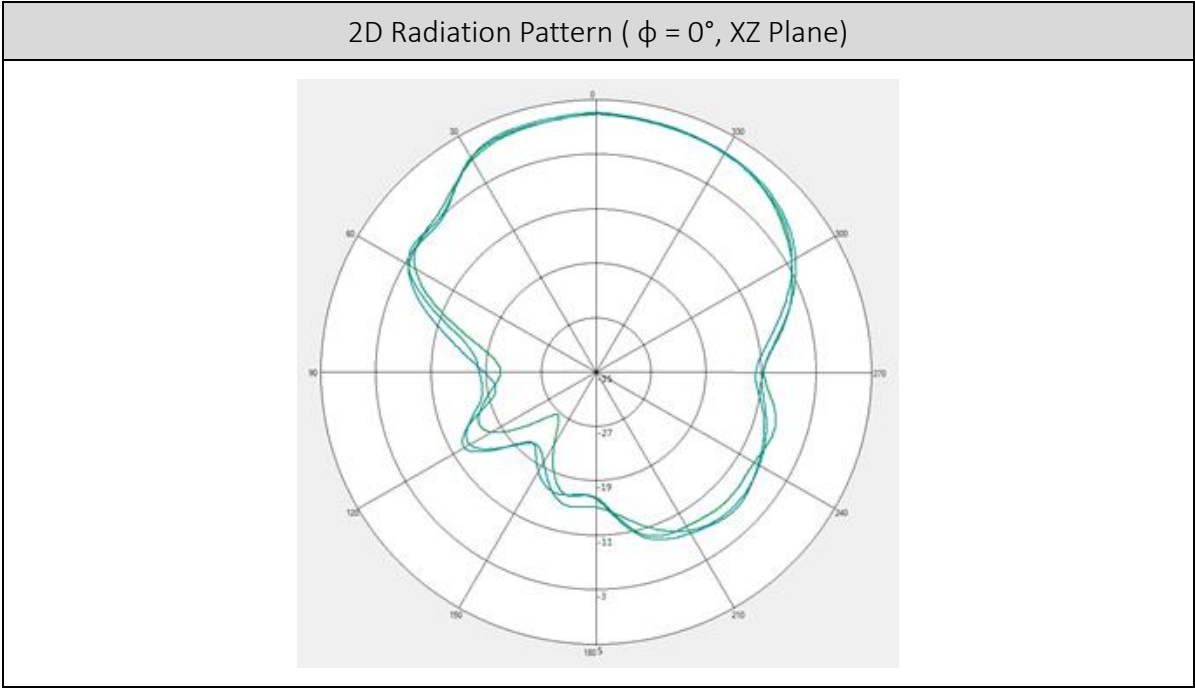


Table 6 Radiation pattern in YZ Plane

