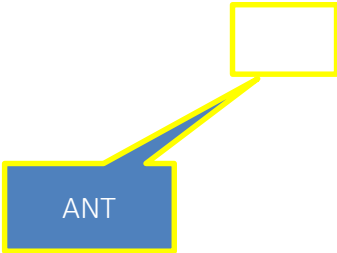


Antenna Specification

Antenna picture	
Antenna Type	PCB IFA Antenna
Antenna Peak Gain	4.53 dBi
Operating Band	2400-2483.5 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	Parmesan
DUT photo	
Test Date	2025-09-10
Test Conductor	Fenghuijuan

OTA measurement

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

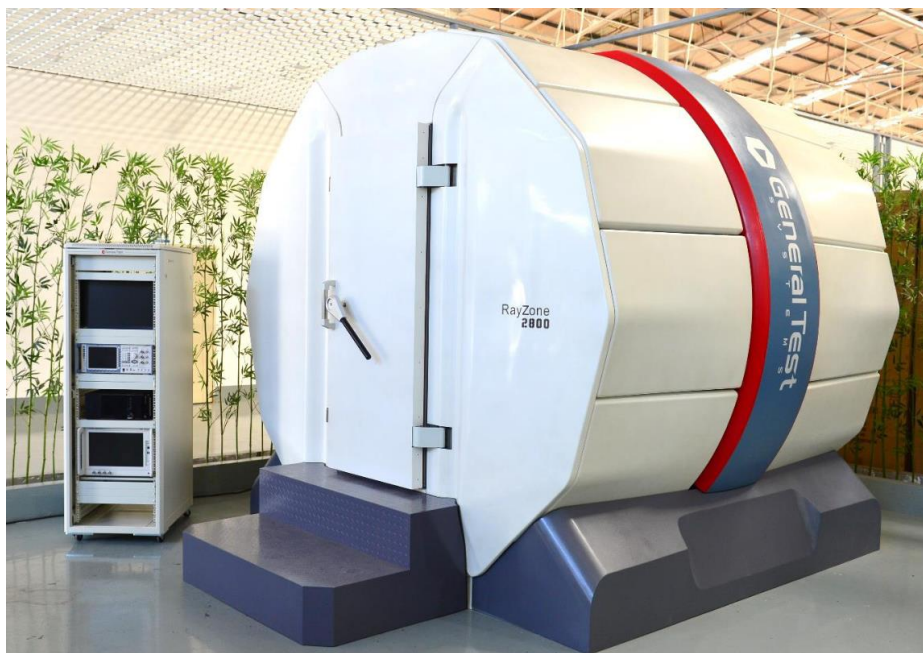


Figure 2 RayZone2800 OTA system

Equipment List

Table 1 Equipment List

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
☐	Network Analyzer	Keysight	E5071C	MY46527808	2025/1/9	2026/1/8
☒	Network Analyzer	Keysight	E5071C	MY46108051	2025/4/19	2026/4/18
☐	Anechoic Chamber	Sunyield	SY-16	SI1727	2025/4/28	2026/4/27
☒	Anechoic Chamber	General Test System	RayZone2800	CT10121244 B5079	2025/5/10	2026/5/9

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	☐	MaxSign-V1.4.3	☒

Test Result

Efficiency and Gain

Table 3 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	2.79	-2.15	61.02
2410	3.13	-2.21	60.14
2420	3.39	-2.17	60.66
2430	3.09	-2.16	60.76
2440	3.56	-2.03	62.72
2450	3.94	-1.88	64.83
2460	4.29	-1.82	65.72
2470	4.14	-1.79	66.26
2480	4.38	-1.72	67.35
2490	4.52	-1.67	68.04
2500	4.53	-1.64	68.55

Radiation Pattern

Table 4 Product coordinates

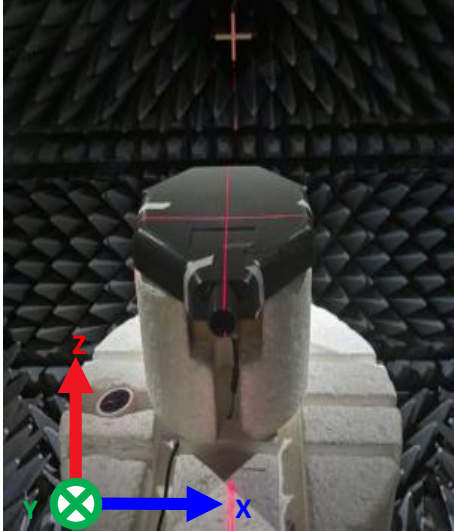
Product Coordinates	
	

Table 5 3D radiation pattern

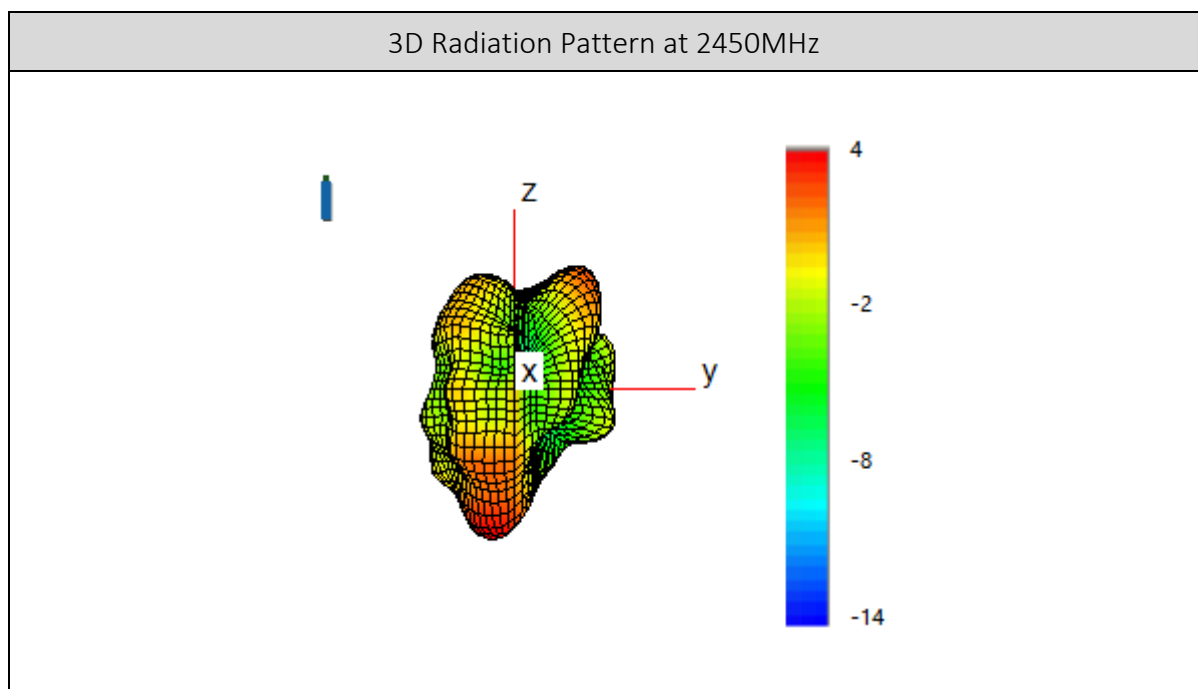


Table 6 Radiation pattern in XY Plane

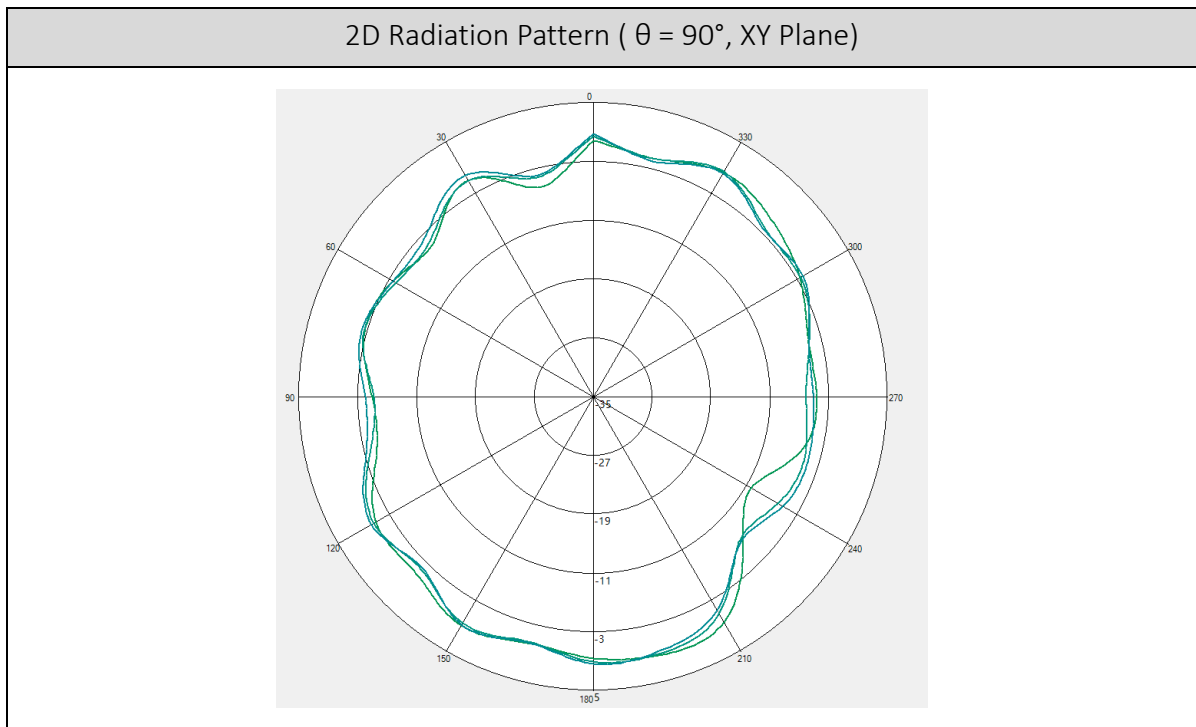


Table 7 Radiation pattern in XZ Plane

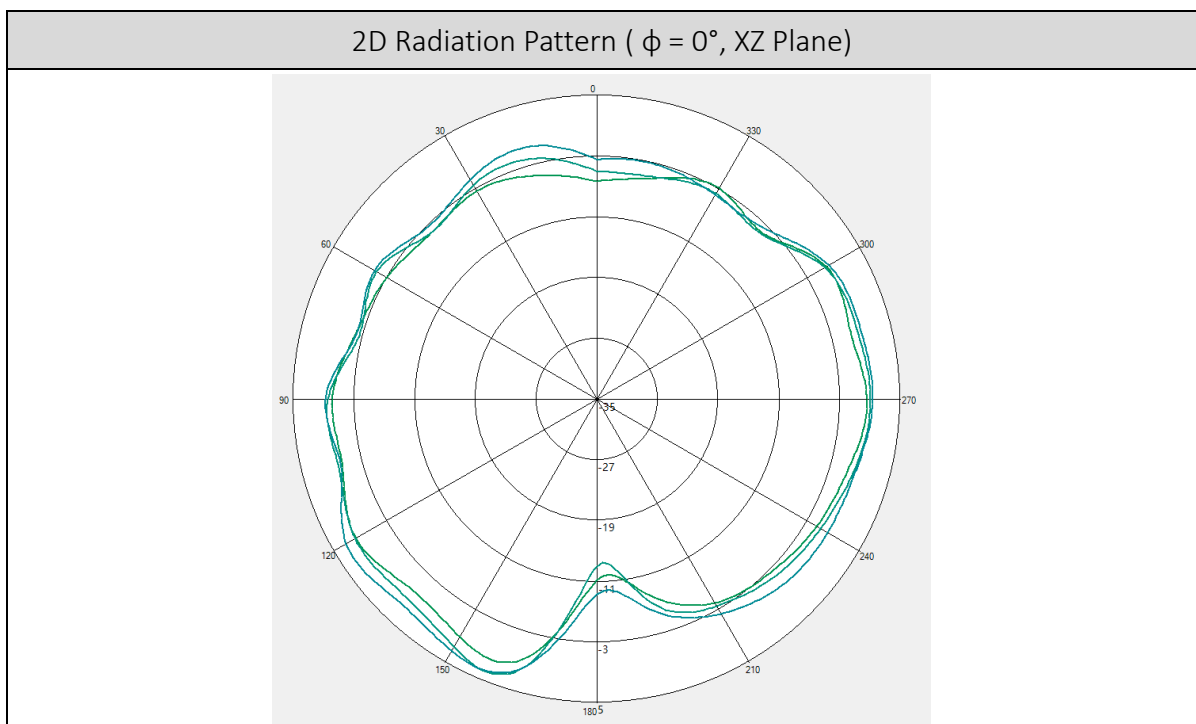


Table 8 Radiation pattern in YZ Plane

