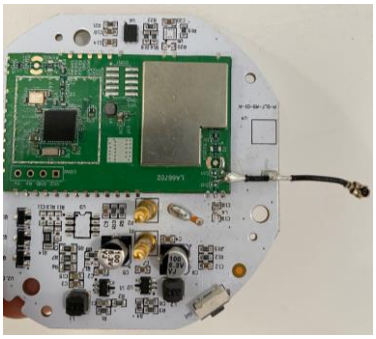
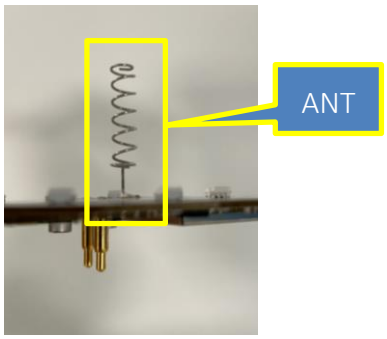
Antenna Specification

Antenna picture	 
Antenna Type	Metal Helical Antenna
Antenna Peak Gain	0.15 dBi
Operating Band	900 MHz ~ 930 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	Pick Cart Andon
DUT photo	
Test Date	2024-03.19
Test Conductor	Liang Cong

OTA measurement

Test System

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

Figure 1 SY-16 OTA system

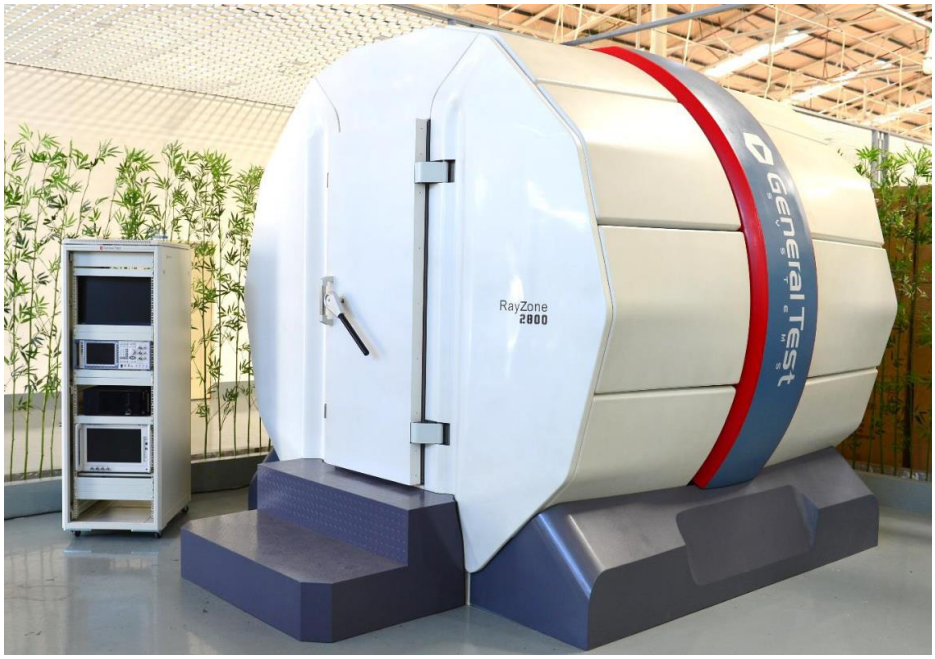


Figure 2 RayZone2800 OTA system

Equipment List

Table 1 Equipment List

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
☒	Network Analyzer	Keysight	E5071C	MY46527808	2024/1/9	2025/1/8
☐	Network Analyzer	Keysight	E5071C	MY46108051	2024/4/19	2025/4/18
☒	Anechoic Chamber	Sunyield	SY-16	SI1727	2024/4/28	2025/4/27
☐	Anechoic Chamber	General Test System	RayZone2800	CT10121244 B5079	2024/5/10	2025/5/9

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 (%)
900	-0.14	-5.10	30.90
902	0.05	-4.90	32.33
904	0.06	-4.88	32.51
906	-0.02	-4.98	31.76
908	-0.04	-5.03	31.37
910	0.08	-4.94	32.04
912	0.15	-4.89	32.45
914	0.12	-4.92	32.24
916	-0.06	-5.08	31.04
918	-0.24	-5.26	29.77
920	-0.31	-5.33	29.32

922	-0.20	-5.23	30.00
924	-0.09	-5.11	30.86
926	-0.17	-5.17	30.39
928	-0.35	-5.35	29.18
930	-0.47	-5.50	28.18

Radiation Pattern

Table 4 Product coordinates

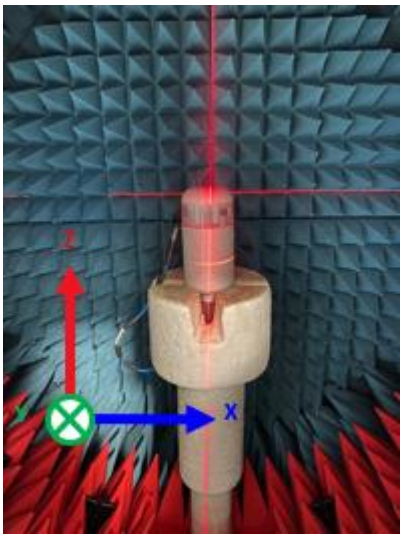
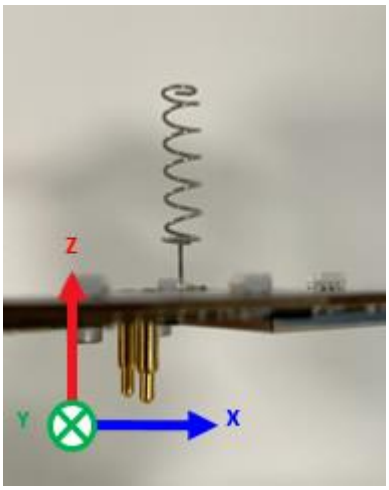
Product Coordinates	
	

Table 5 3D radiation pattern

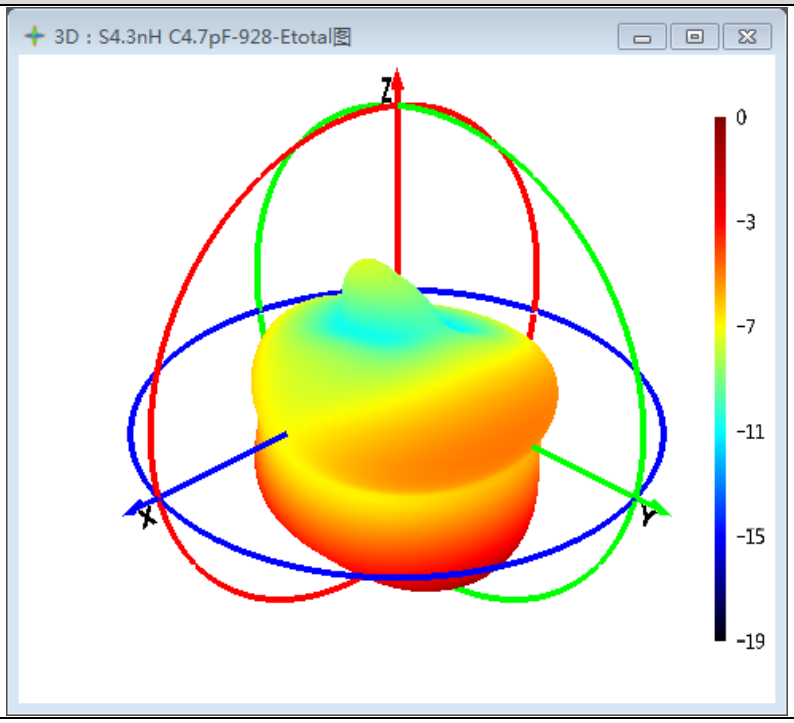
3D Radiation Pattern at 916MHz


Table 6 Radiation pattern in XY Plane

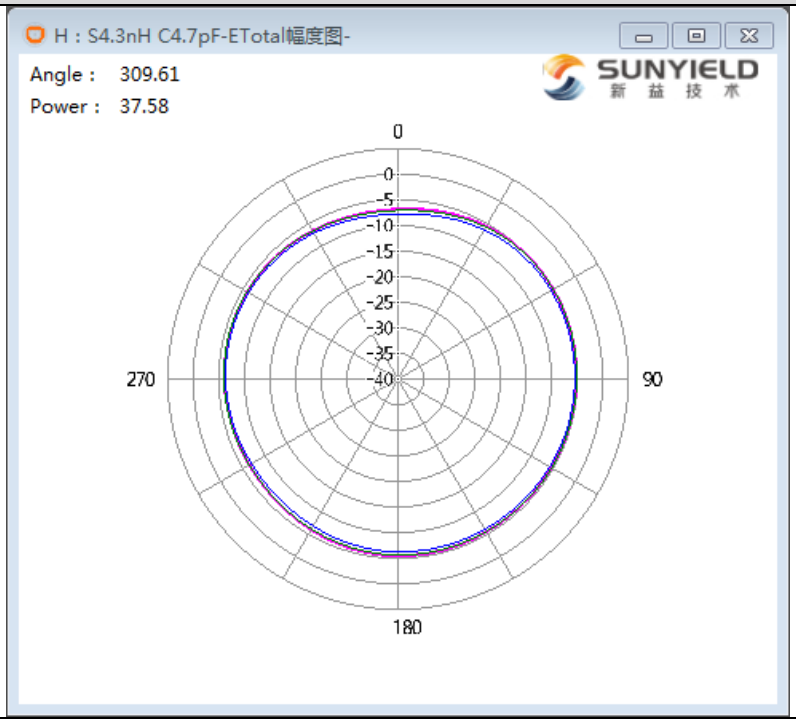
2D Radiation Pattern (θ = 90°, XY Plane)


Table 7 Radiation pattern in XZ Plane

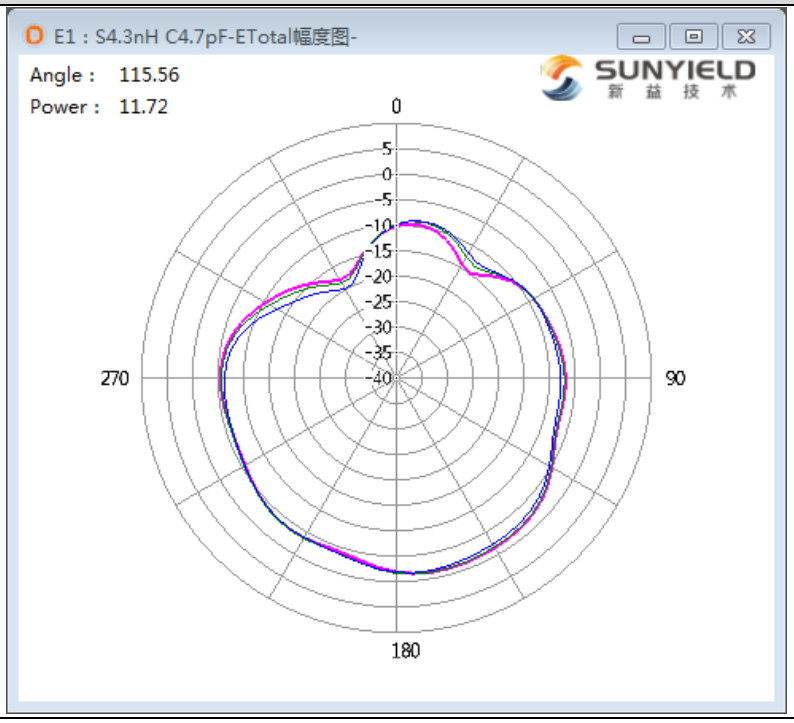
2D Radiation Pattern (ϕ = 0°, XZ Plane)


Table 8 Radiation pattern in YZ Plane

2D Radiation Pattern (ϕ = 90°, YZ Plane)