Antenna Information

Antenna picture	please refer to external photo.
Antenna Type	Internal inverted F PCB antenna
Antenna Peak Gain	ZigBee: 1.07 dBi
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	HCR-Z99C-Z-C621-US
DUT photo	please refer to external photo.
Test System	SY-16 OTA system
Test Engineer	Ouyanglongji
Test Date	2023-02-13

Test Standard

Antenna Performance	Radiation Efficiency	IEEE Standard Test Procedures for Antennas	ANSI/IEEE Std 149-2021

Equipment List:

Equipment	Manufacturer	Model No.	Last Cal.	Due Date
Network Analyzer	Agilent	E5071C	2022.10.8	2023.10.7

Test Software:EMQuest

Test System

The SY-16 OTA system is an anechoic chamber, which can measures antenna passive data such as antenna efficiency, antenna gain, and 2D&3D pattern. The coordinates and topology are shown as follow:

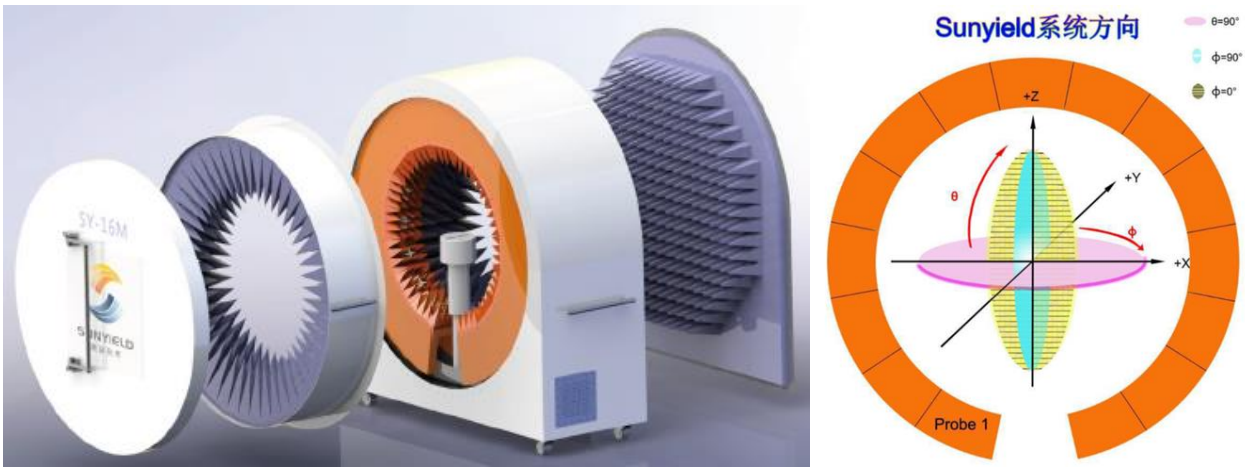


Figure 1 SY-16 OTA system

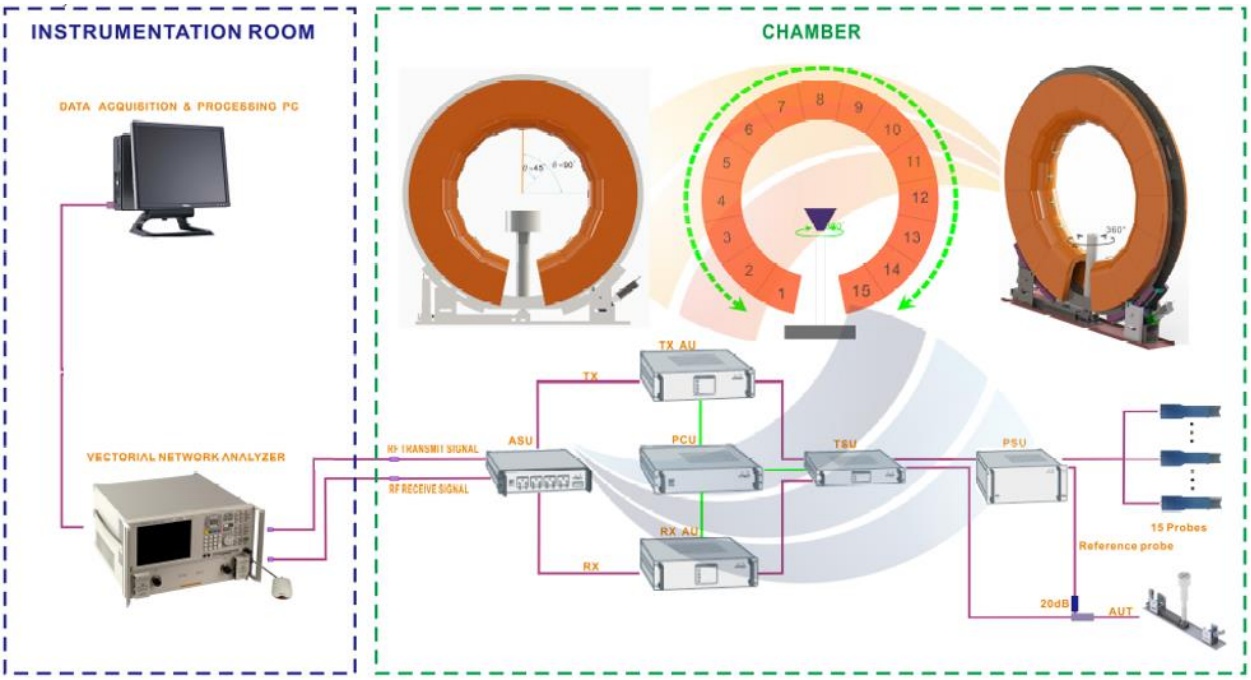


Figure 2 OTA measurement topology

Test Result

Efficiency and Gain

Table 1 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	-0.18	-7.24	18.88
2410	0.27	-6.8	20.89
2420	0.65	-6.21	23.93
2430	0.3	-6.24	23.76
2440	0.11	-6.19	24.04
2450	0.42	-6.08	24.65
2460	0.79	-5.85	25.99
2470	0.87	-5.83	26.09
2480	0.64	-6.27	23.63
2490	0.63	-6.41	22.85
2500	1.07	-6.16	24.23

Radiation Pattern

Table 2 Product coordinates

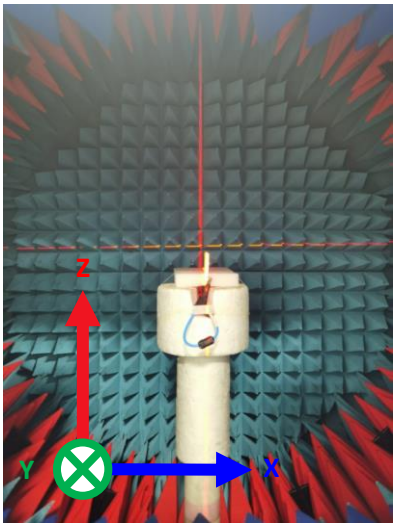
Product Coordinates	
	

Table 3 3D radiation pattern

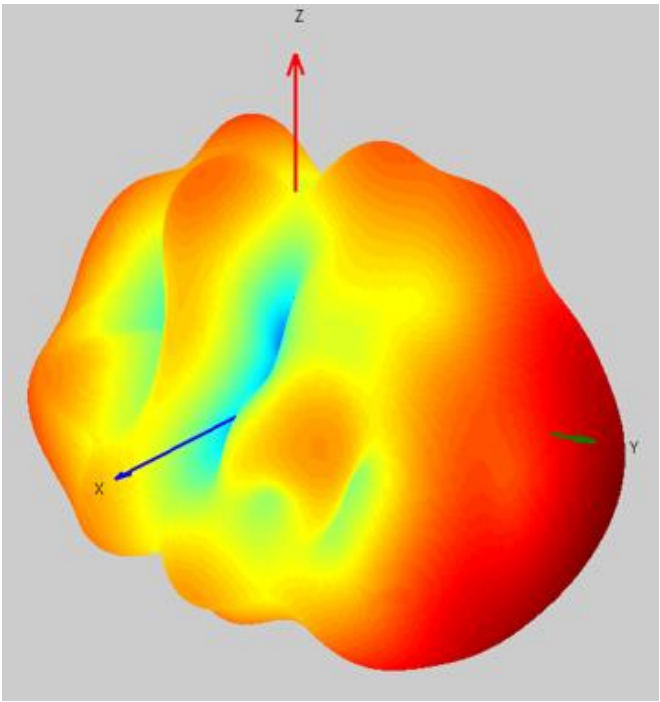
3D Radiation Pattern at 2450MHz


Table 4 Radiation pattern in XY Plane

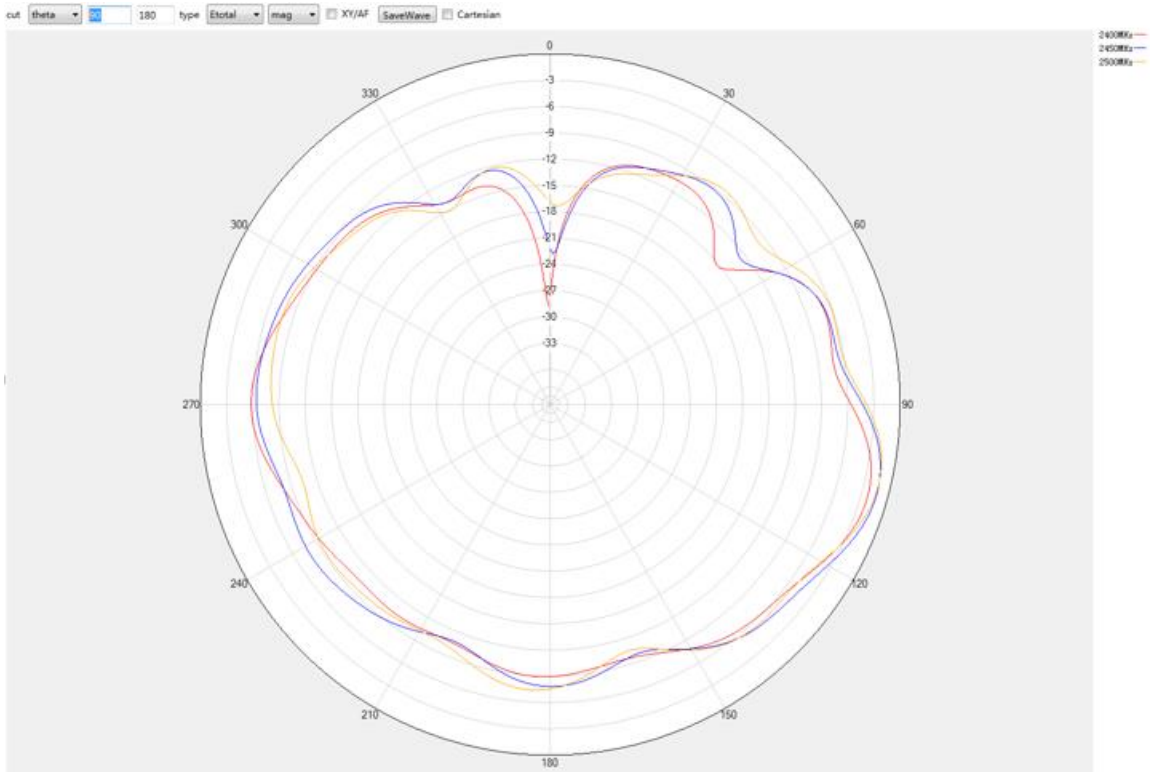
2D Radiation Pattern (θ = 90°, XY Plane)


Table 5 Radiation pattern in XZ Plane

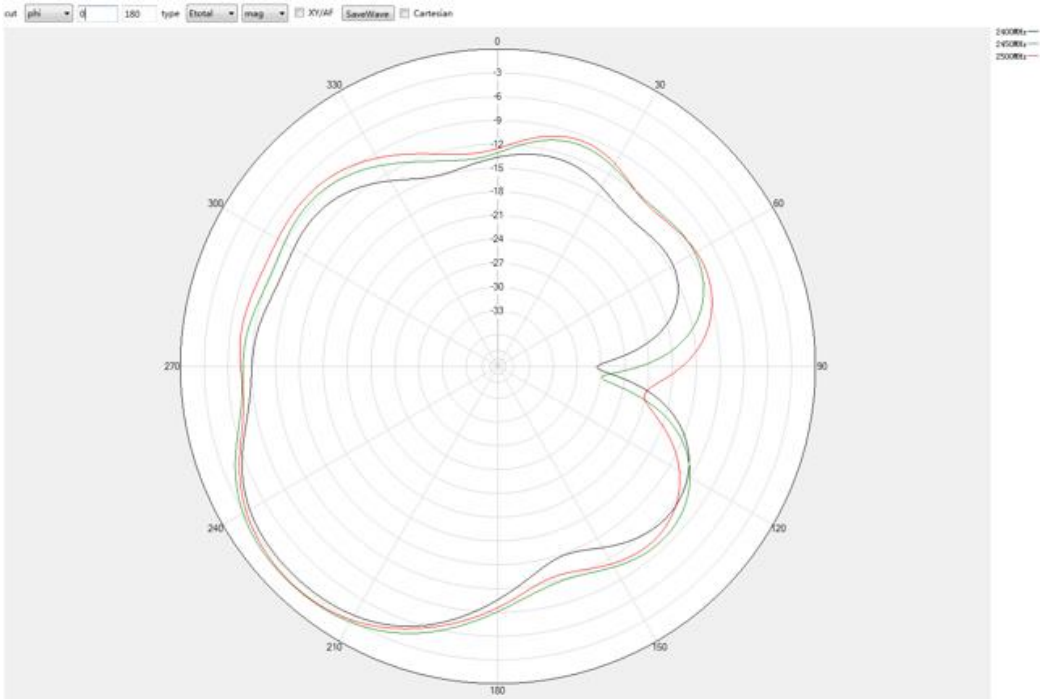
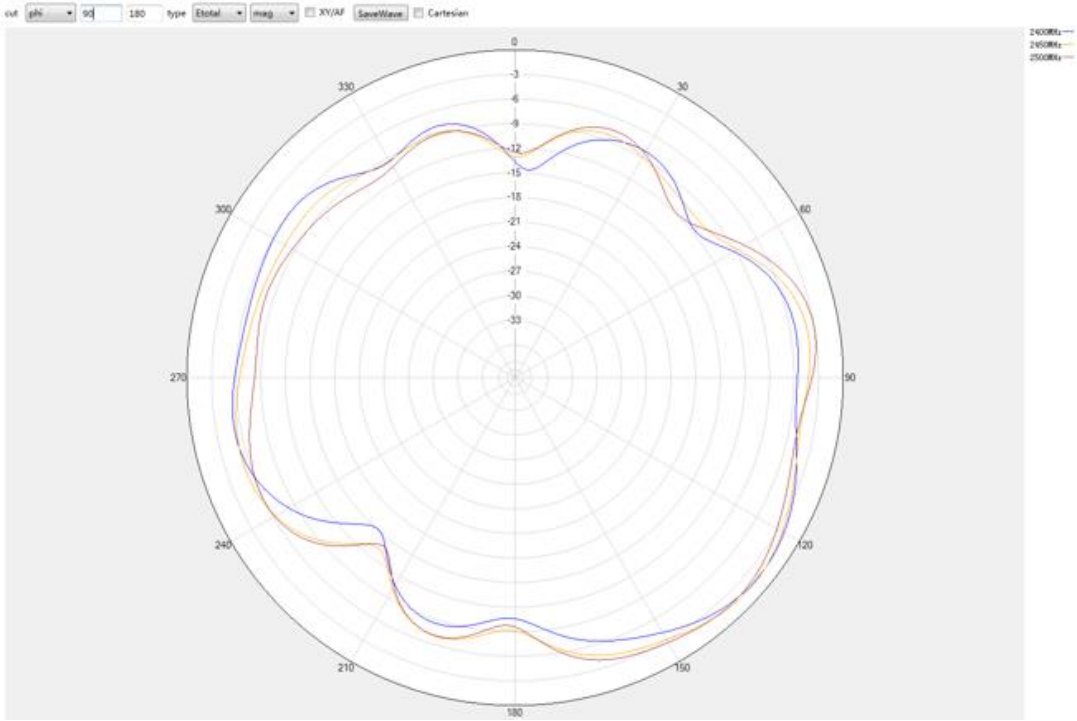
2D Radiation Pattern (ϕ = 0°, XZ Plane)


Table 6 Radiation pattern in YZ Plane

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