Antenna Information

Antenna picture	please refer to internal photo.
Antenna Type	Internal inverted F PCB antenna
Antenna Peak Gain	ZigBee: 3.18 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:

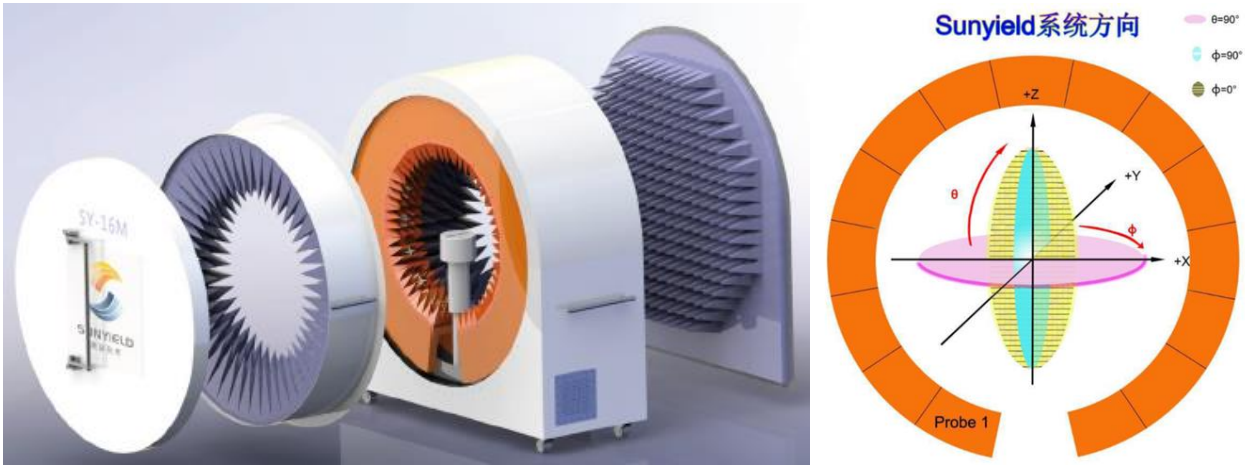


Figure 1 SY-16 OTA system

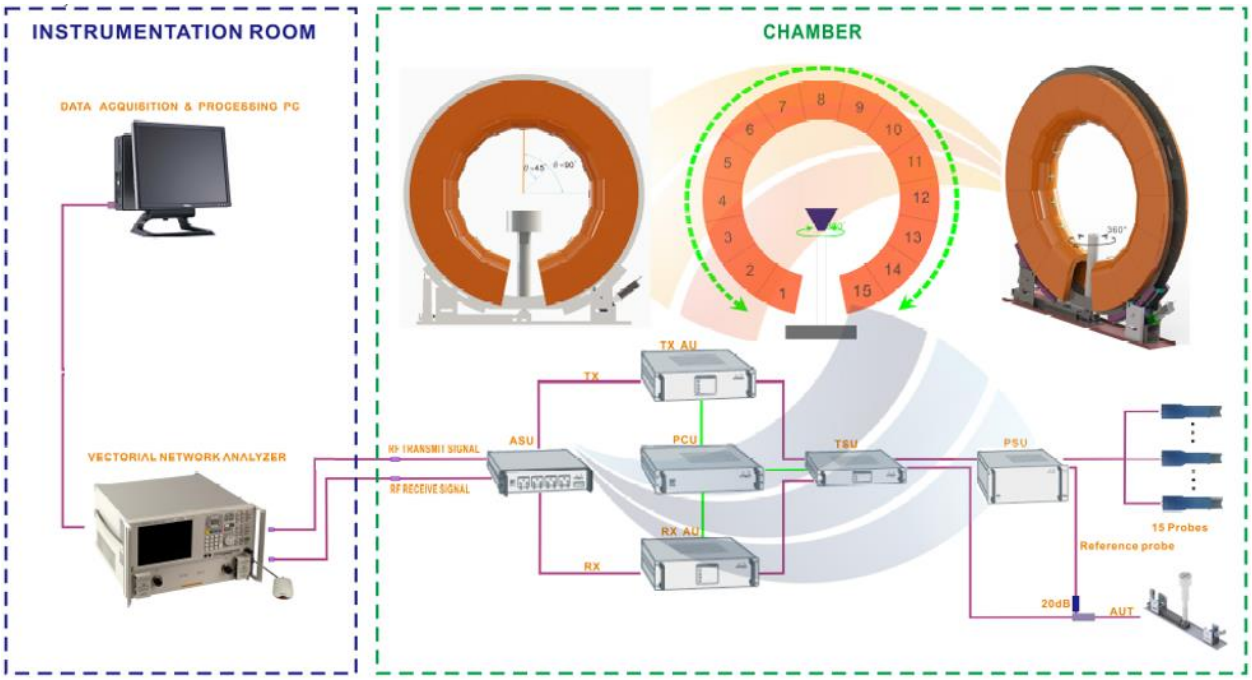


Figure 2 OTA measurement topology

Test Result

Efficiency and Gain

Table 1 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	0.64	-3.45	45.23
2410	1.71	-2.84	51.97
2420	1.99	-2.49	56.34
2430	1.79	-2.49	56.37
2440	1.88	-2.25	59.5
2450	2.14	-2.13	61.27
2460	2.4	-1.89	64.68
2470	2.47	-1.74	67.02
2480	2.41	-1.84	65.49
2490	2.62	-1.72	67.27
2500	3.18	-1.37	72.92

Radiation Pattern

Table 3 3D radiation pattern

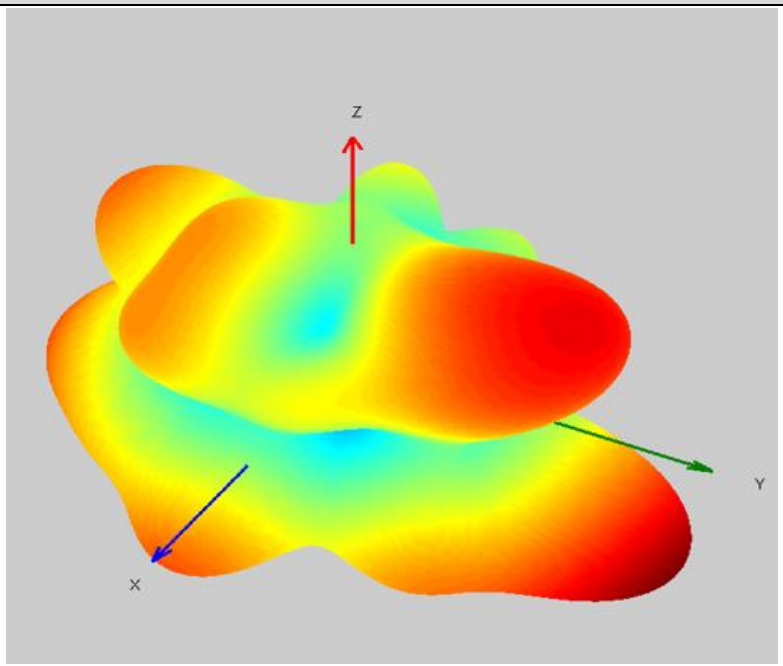
3D Radiation Pattern at 2450MHz


Table 4 Radiation pattern in XY Plane

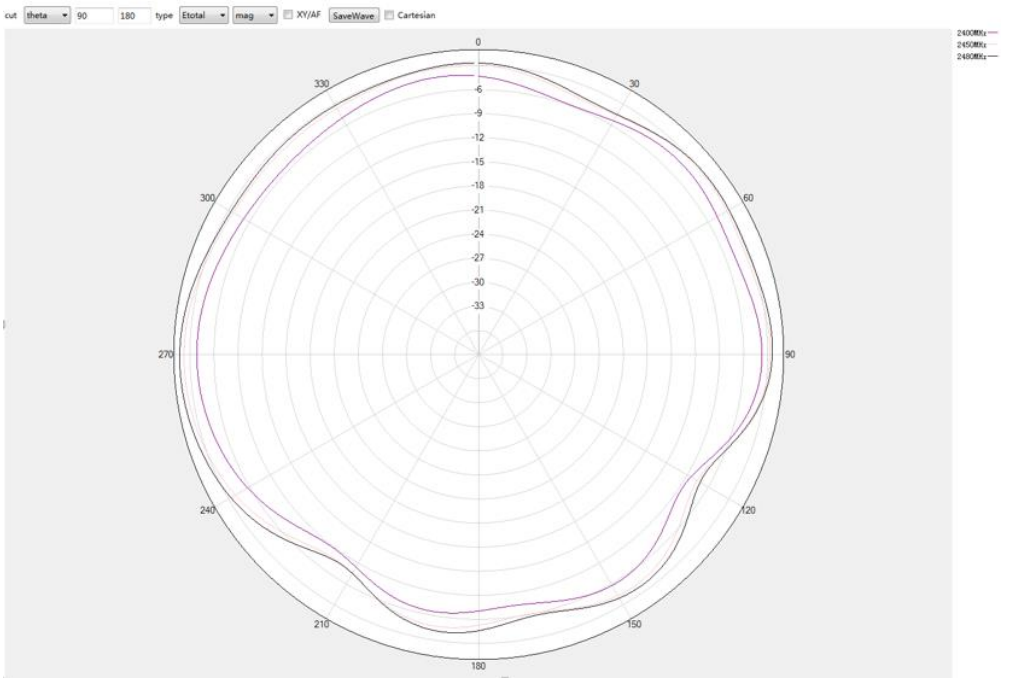
2D Radiation Pattern (θ = 90°, XY Plane)


Table 5 Radiation pattern in XZ Plane

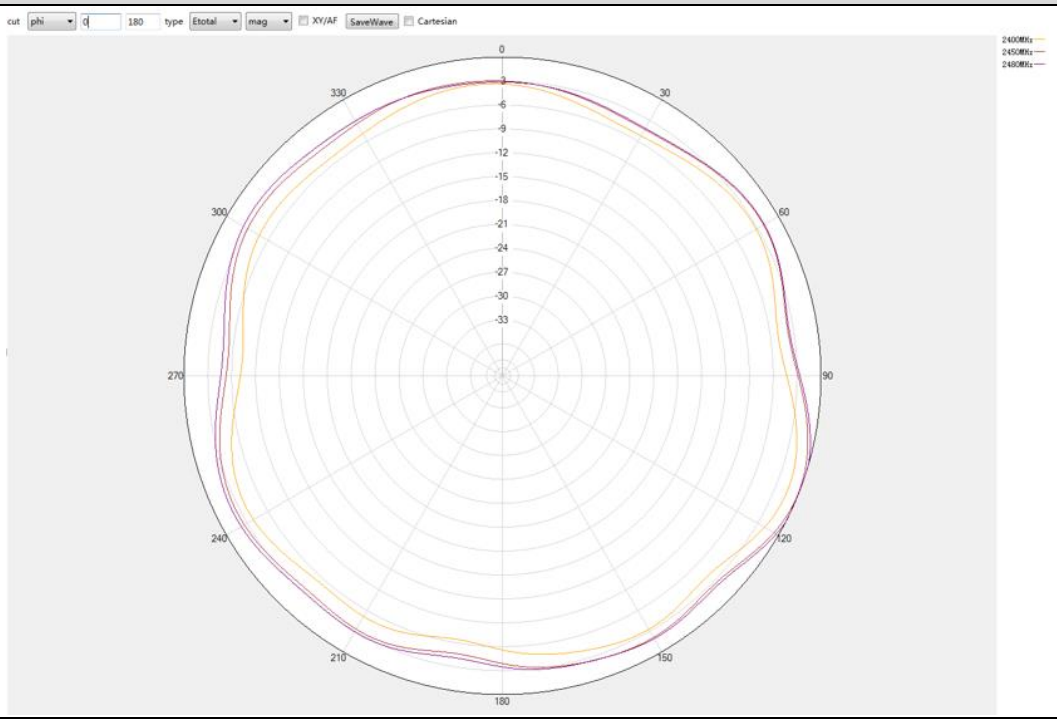
2D Radiation Pattern (ϕ = 0°, XZ Plane)


Table 6 Radiation pattern in YZ Plane

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