



Antenna Specification

Manufacture: TUYA

Product Name: WR11-U Antenna

Antenna Type: PCB

Test Date: 2025.3.20

Tested by: CaiQuan

Approved by: Licco

Content

1.General Description	1
2.Test Configurations	2
2.1 Test Environment	2
2.2 Test Equipment	2
2.3 Test Principle.....	4
3.Test Results	4
3.1 Gain and Efficiency.....	4
3.2 Radiation Pattern	6
4.Antenna Dimensions	9
5.EUT Photo.....	10
6.Test Setup Photo	11



1.General Description

Manufacturer	Hangzhou Tuya Information Technology Co.,Ltd
Address	Room 701,Building 3,More Center,No.87 GuDun Road, Hangzhou, Zhejiang,China
Test Location	Room 106, Building 3, Letong Science Park, No. 500, Qiuyi Road, Binjiang District, Hangzhou
Product Name	WR11-U Antenna
Product model	WR11-U
Antenna Type	PCB Antenna
Test Items	Gain; Efficiency; Radiation Pattern
Test Frequency	2400-2500MHz 5150-5850MHz
Test Standard	ANSI/IEEE Std 149-1979



2.Test Configurations

2.1 Test Environment

Temperature (°C)	25
Humidity (%RH)	60
Atmospheric Pressure (kPa)	100.5

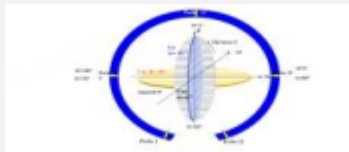
2.2 Test Equipment

	Test itens	Test equipment
S Parameter	1.Retum Loss 2.VSWR	Network analyzer (Agilent E5071B) (Calibration date: November 21, 2024 - November 20, 2025)
Passive test	1.Frequency 2.Gain 3.Radiation Pattern	1.3Dmicrowave darkroom (5m*4m*4m) 2.Network analyzer (Agilent E5071B) (Calibration date: December 18, 2024 - December 17, 2025)
Active test	1. TRP 2. TIS	1.3Dmicrowave darkroom (5m*4m*4m) 2.Comprehensive test instrument (CMW500) (Calibration date: December 16, 2024 - December 15, 2025)
The passive test results are obtained by collecting the near-field data of the DUT spherical surface through multiple probes, and then calculating the		

directivity of the DUT through the near-far field conversion formula. Finally, the gain and efficiency are calculated through the directivity coefficient on the directivity diagram.

Test software: PassiveTest.exe

Darkroom coordinates



Test antenna



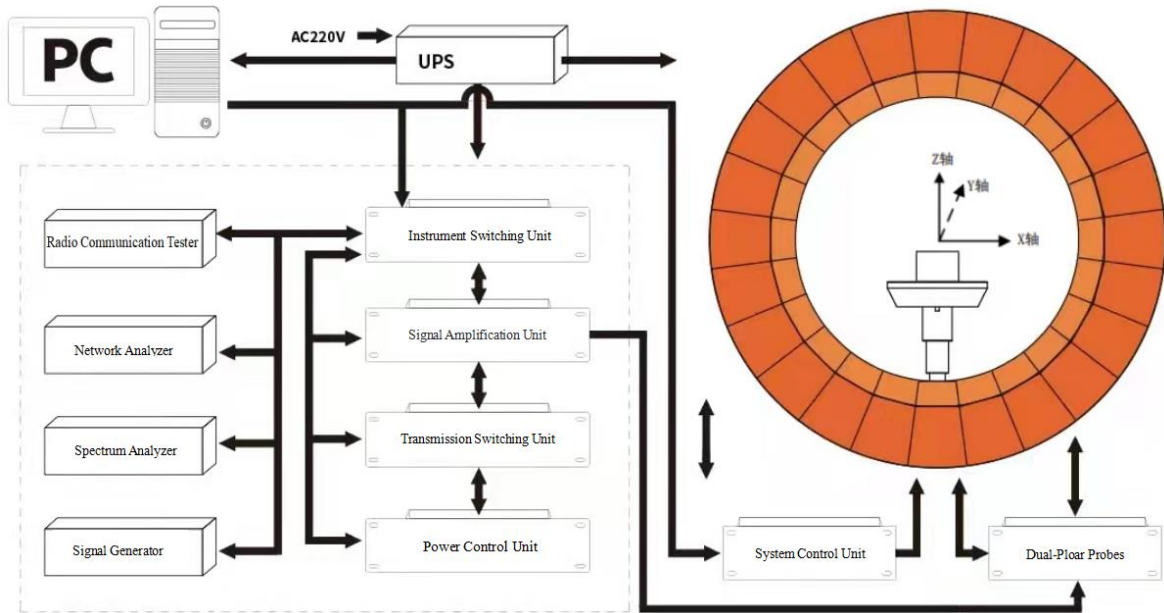
CMW500



Agilent E5071B



2.3 Test Principle



3.Test Results

3.1 Gain and Efficiency

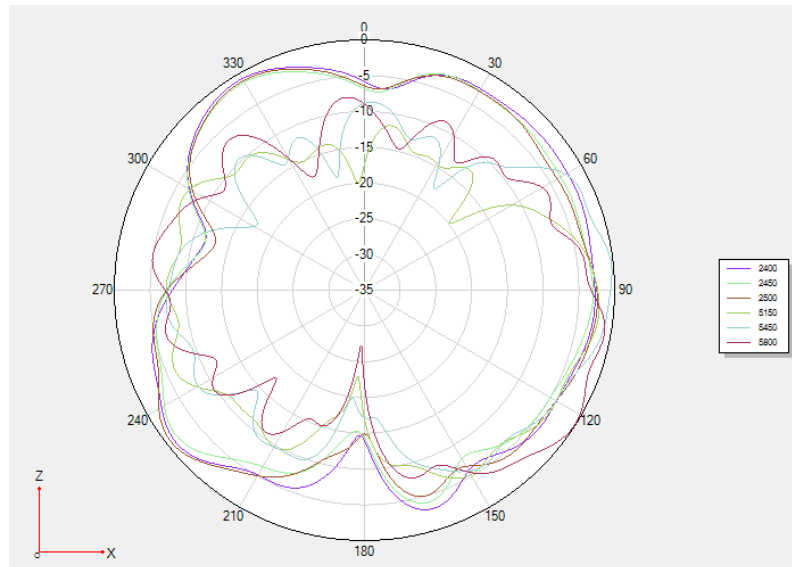
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	0.27	36.06
2410	0.24	38.82
2420	-0.04	39.9
2430	0.03	38.46
2440	-0.02	38.02
2450	-0.16	38.28
2460	0.46	38.64



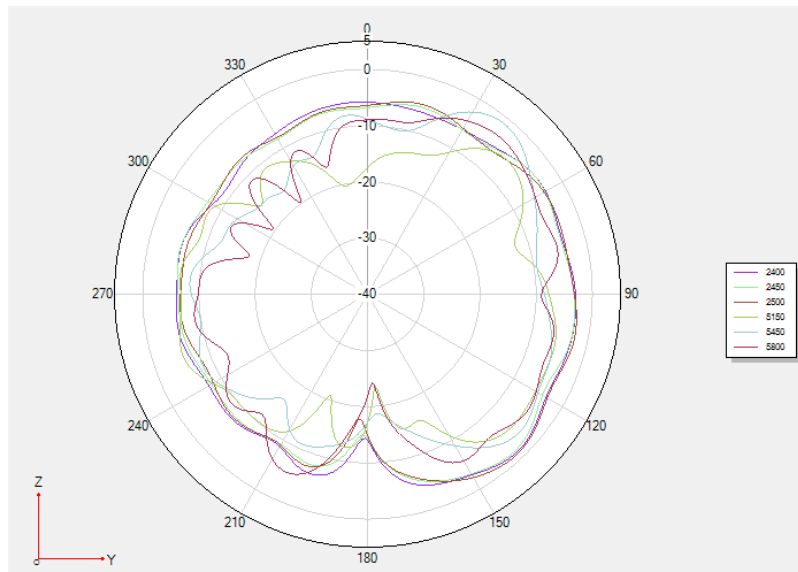
2470	0.84	36.9
2480	0.88	37.84
2490	0.67	36.81
2500	0.84	37.24
5150	-0.64	28.71
5250	-0.34	28.31
5350	0.12	26.18
5450	1.43	26.49
5550	1.53	26.85
5650	1.28	27.35
5750	1	28.51
5850	1.07	25.06

3.2 Radiation Pattern

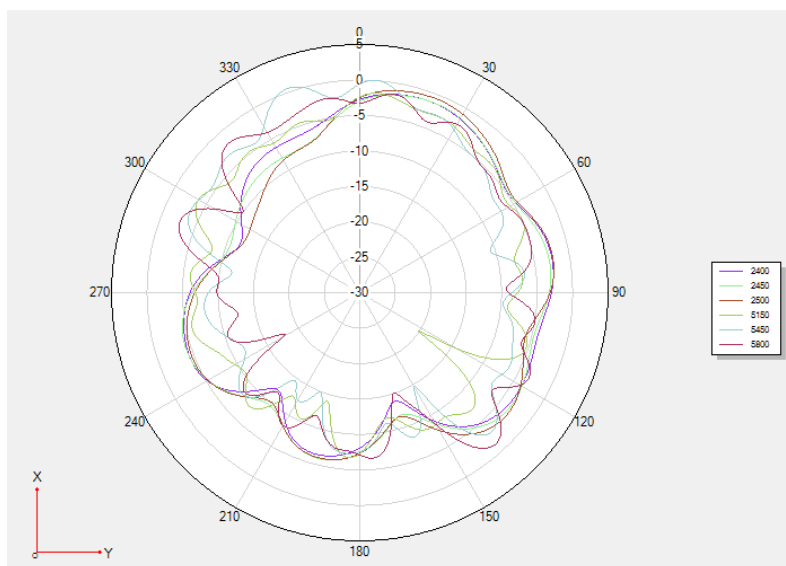
Phi 0 2D



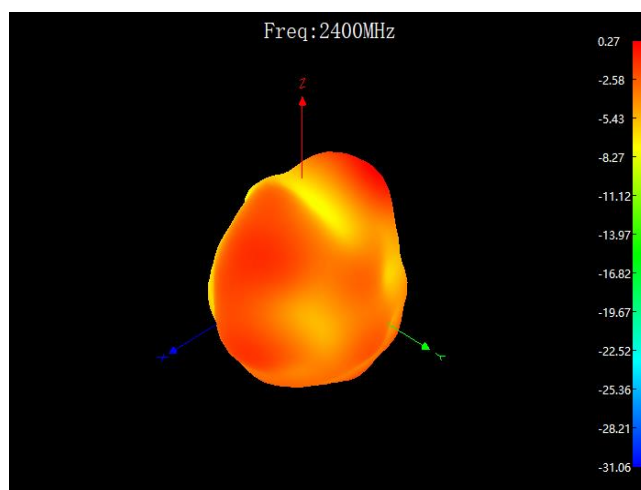
Phi 90 2D



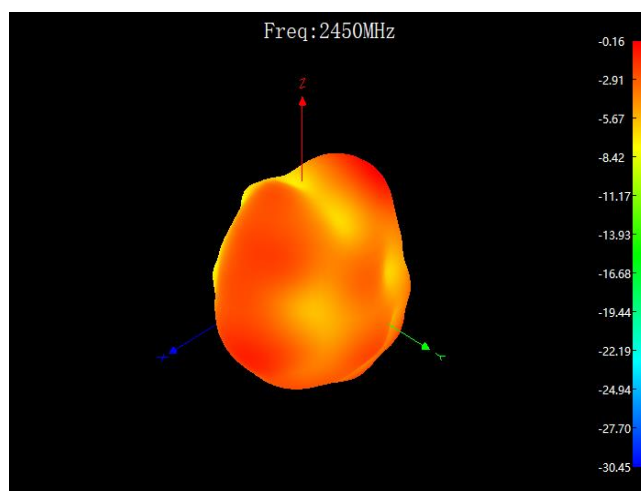
Theta 90 2D



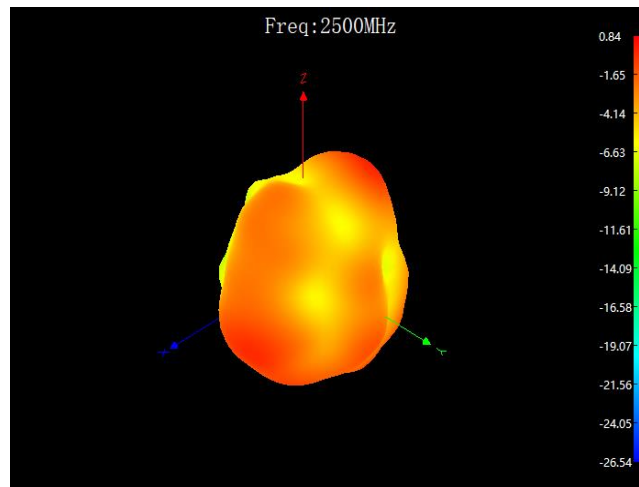
2400MHz 3D
放类似图 Z 轴朝上



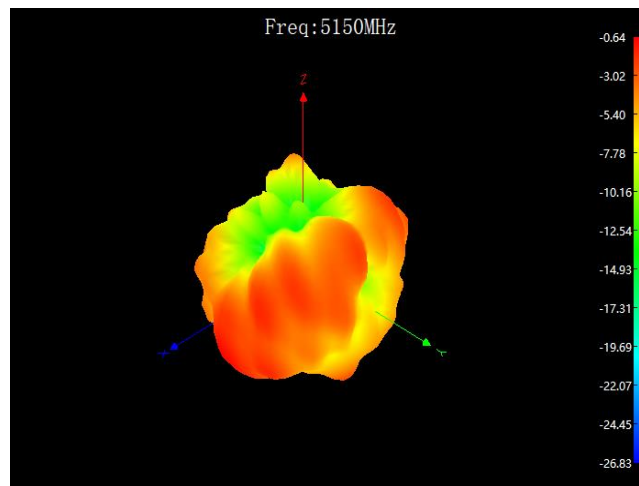
2450MHz 3D



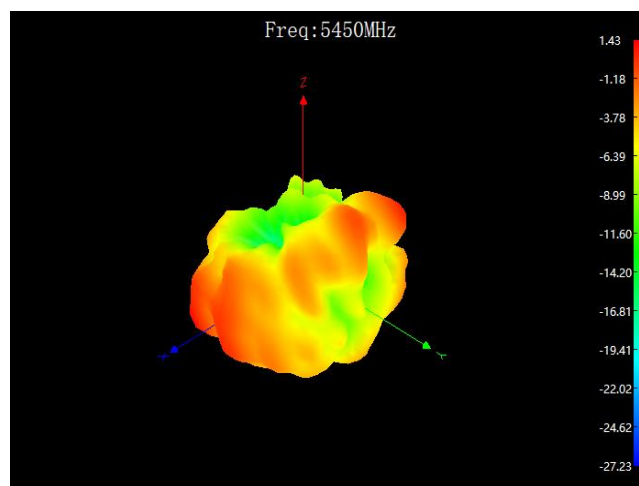
2500MHz 3D



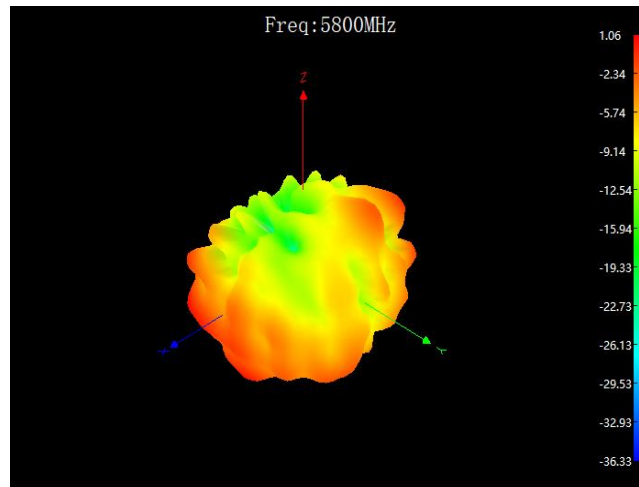
5150MHz 3D



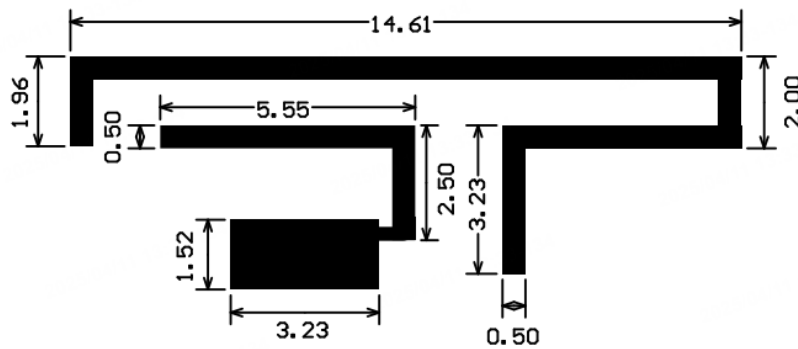
5450MHz 3D



5800MHz 3D



4. Antenna Dimensions



单位: mm