



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	2
3.Test Results	3
3.1 Gain and Efficiency	3
3.2 Radiation Pattern	4
4.Antenna Dimensions	7
5.EUT Photo	7
6.Test Setup Photo	8



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

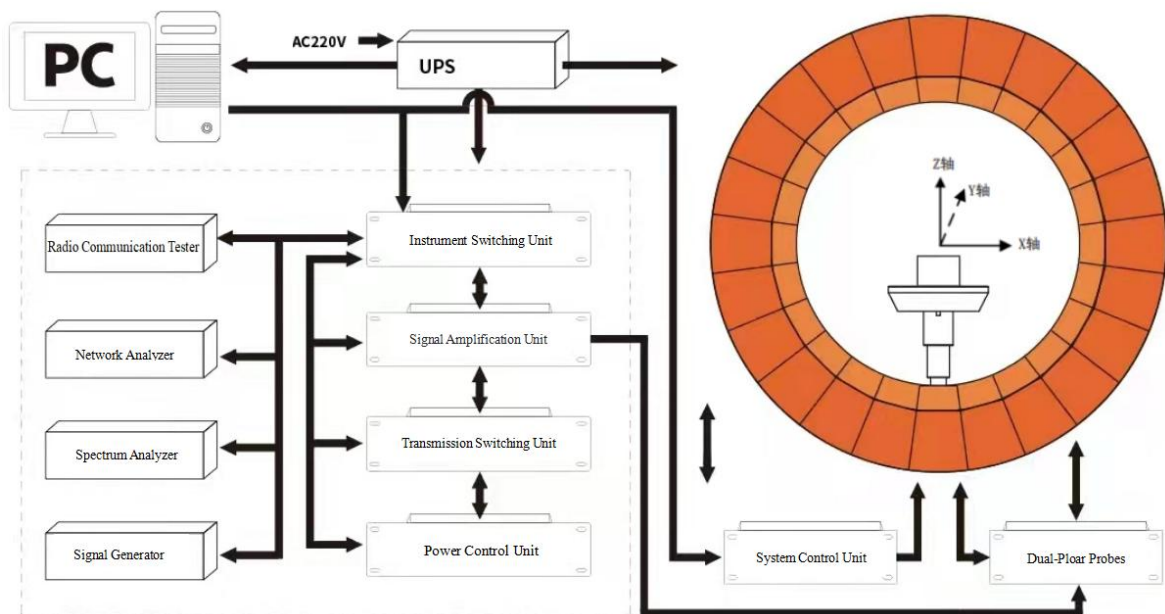
2.1 Test Environment

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

2.2 Test Equipment

Test System	3D microwave darkroom (5m*4m*4m)
Test Instrument	Network analyzer (Agilent E5071B)
Test software	PassiveTest.exe

2.3 Test Principle



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.



3.Test Results

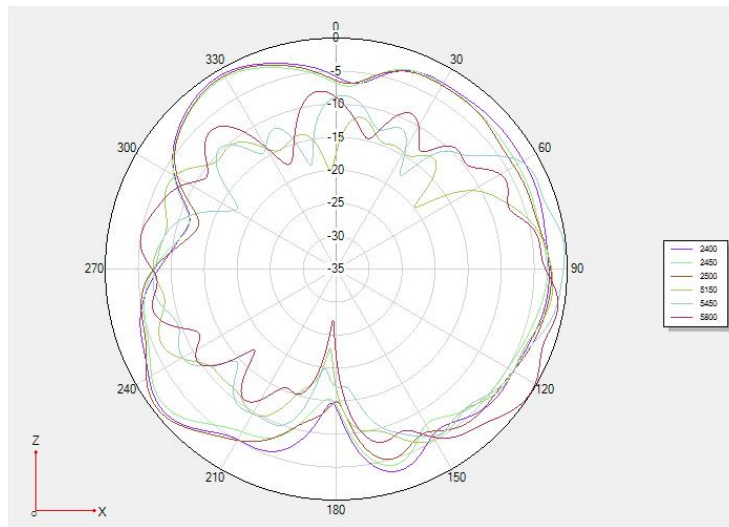
3.1 Gain and Efficiency

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

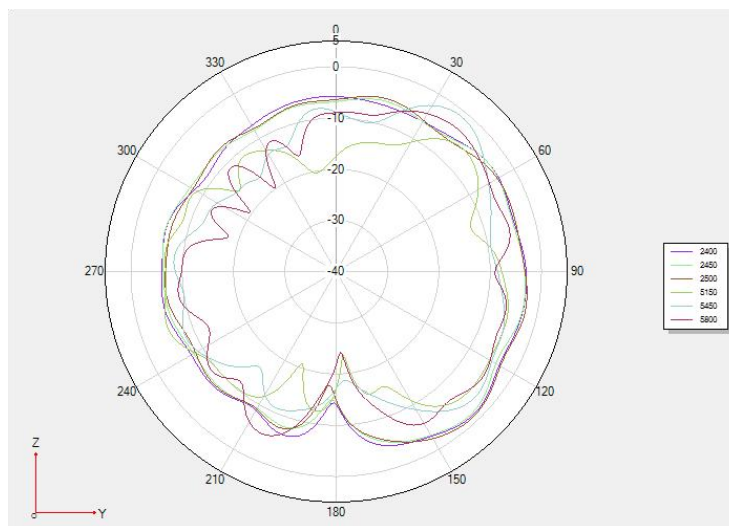
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
5150	-0.64	28.71
5250	-0.34	28.31
5350	0.12	26.18
5450	1.43	26.49
5550	1.53	26.85
5650	1.28	27.35
5750	1	28.51
5850	1.07	25.06

3.2 Radiation Pattern

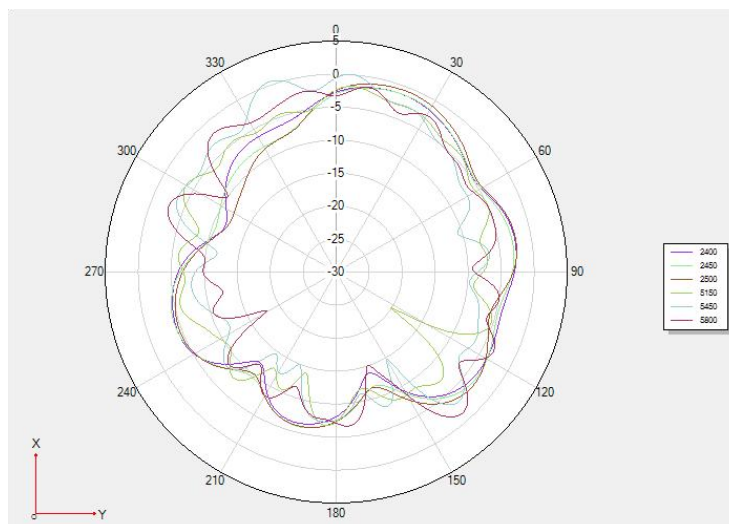
Phi 0 2D



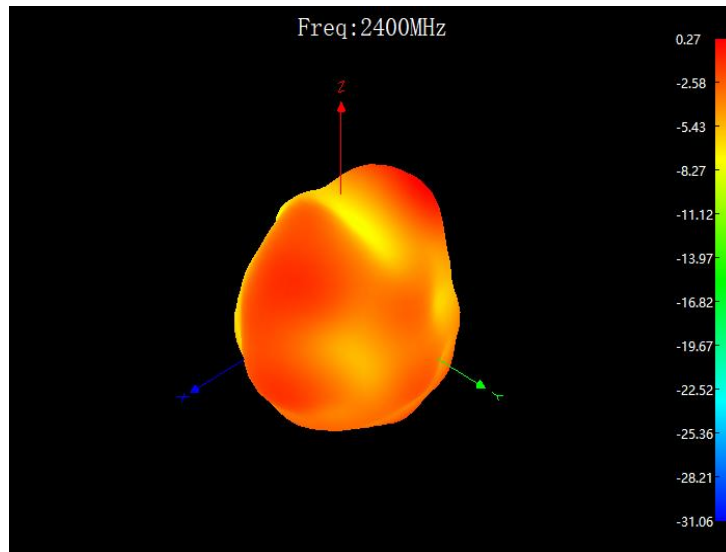
Phi 90 2D



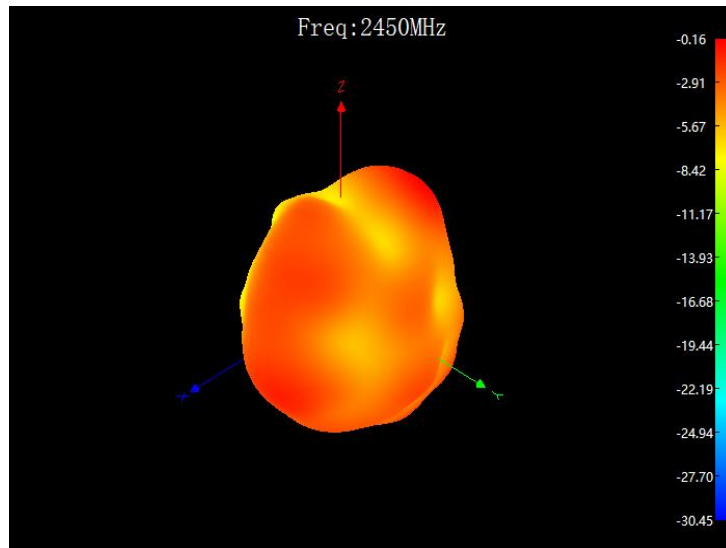
Theta 90 2D



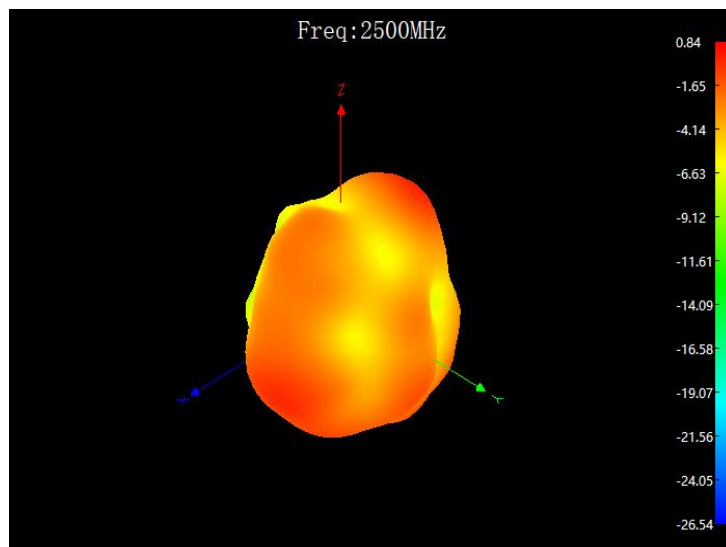
2400MHz 3D



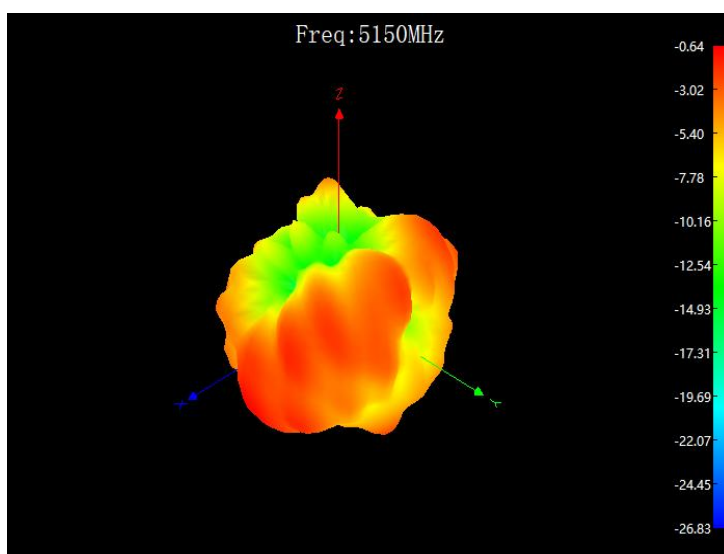
2450MHz 3D



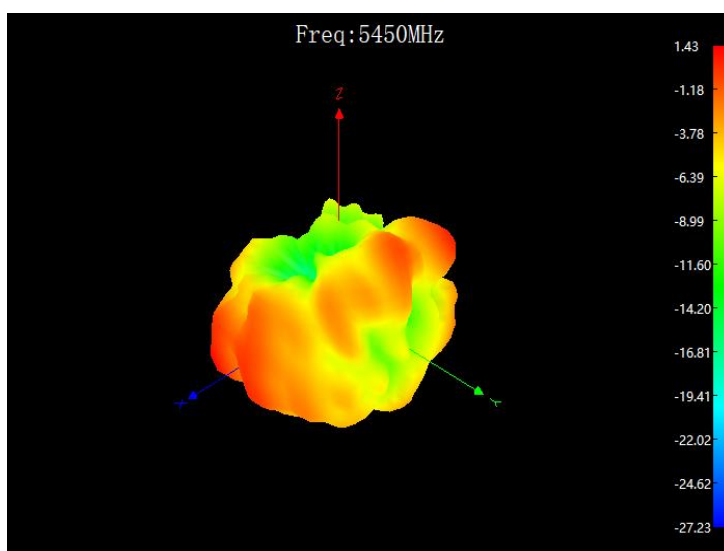
2500MHz 3D



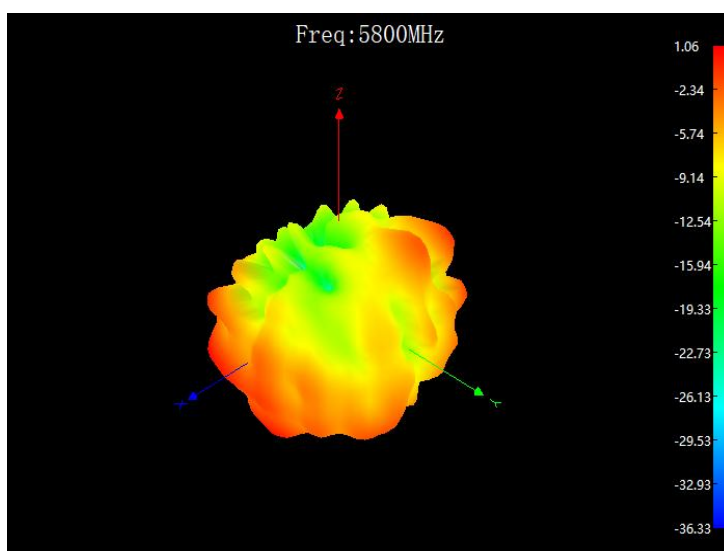
5150MHz 3D



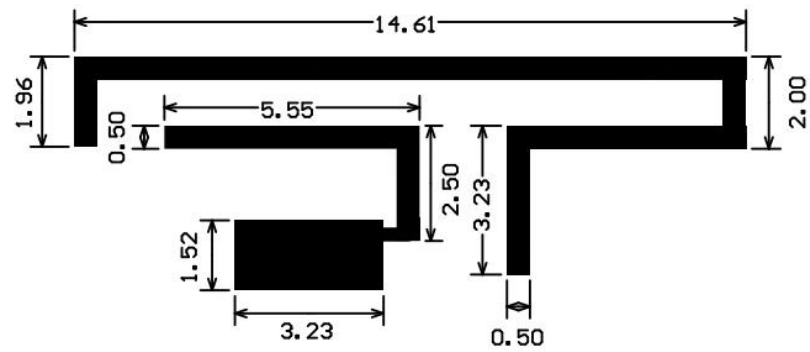
5450MHz 3D



5800MHz 3D



4. Antenna Dimensions



Unit: mm

5. EUT Photo



6.Test Setup Photo

