



Antenna Specification

Manufacture: TUYA

Product Name: WR11-3S Antenna

Antenna Type: PCB antenna

Test Date: 2026.2.28

Tested by: Wang Zengquan

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	4
3.1 Gain and Efficiency	4
3.2 Radiation Pattern	6
4.Antenna Dimensions	7
5.EUT Photo	9
6.Test Setup Photo	9



1.General Description

Manufacturer	Hangzhou Tuya Information Technology Co.,Ltd
Address	Room 301, Building 1, Huace Center, Xihu District, Hangzhou City, Zhejiang Province, China
Test Location	Room 106, Building 3, Letong Science Park, No. 500, Qiuyi Road, Binjiang District, Hangzhou
Tester	Huang Teng
Product Name	WR11-3S Antenna
Product model	WR11-3S
Antenna Type	PCB antenna
Test Items	Gain; Efficiency; Radiation Pattern
Test Frequency	2400-2490MHz 5150-5850MHz
Test Standard	ANSI/IEEE Std 149-1979



2.Test Configurations

2.1 Test Environment

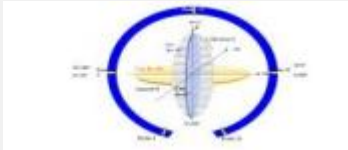
Temperature (°C)	25
Humidity (%RH)	60
Atmospheric Pressure (kPa)	100.5

2.2 Test Equipment

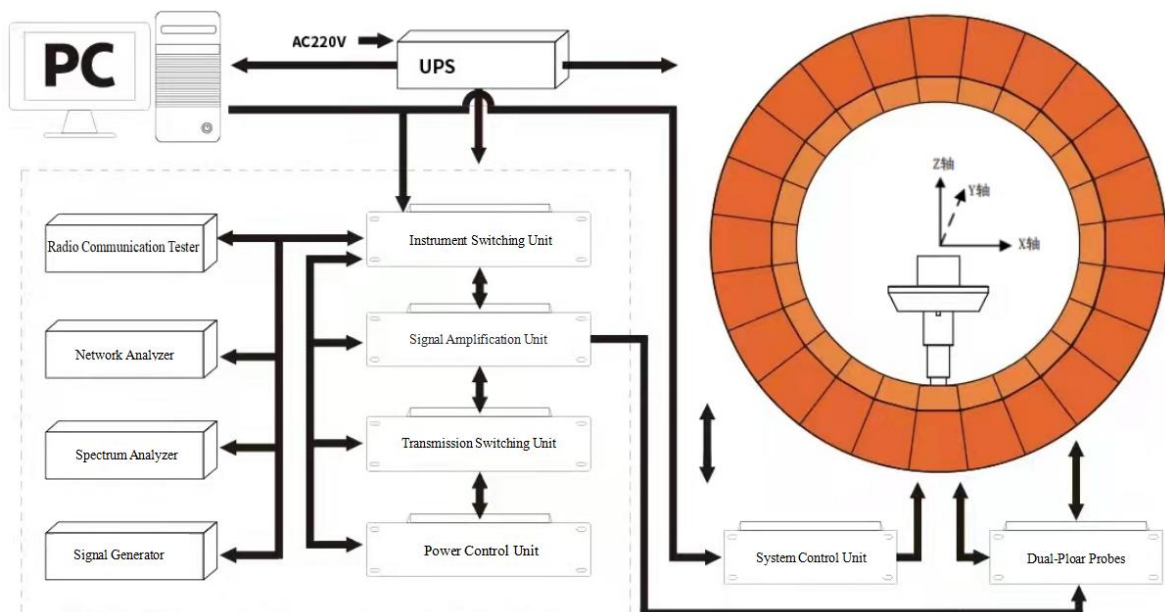
	Test itens	Test equipment
S Parameter	1.Retum Loss 2.VSWR	Network analyzer (Agilent E5071B) (Calibration date: March 15, 2025 - March 01, 2026)
Passive test	1.Frequency 2.Gain 3.Radiation Pattern	1.3Dmicrowave darkroom (5m*4m*4m) 2.Network analyzer (Agilent E5071B) (Calibration date: March 15, 2025 - March 01, 2026)
Active test	1. TRP 2. TIS	1.3Dmicrowave darkroom (5m*4m*4m) 2.Comprehensive test instrument (CMW500) (Calibration date: March 15, 2025 - March 01, 2026)
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

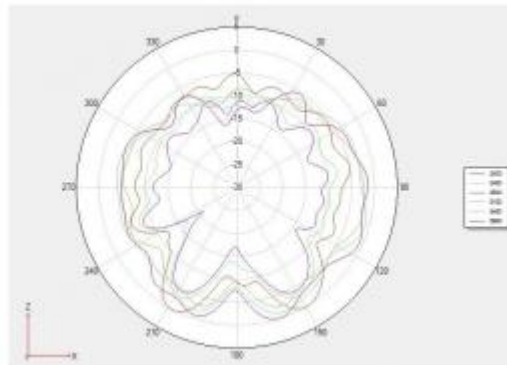
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	-1.96	10.86
2410	-1.84	11.89
2420	-0.66	15.78
2430	-0.35	17.42
2440	-0.13	18.92
2450	-0.67	18.16
2460	0.51	21.78
2470	1.54	22.59
2480	2.07	25.41
2490	1.6	24.32
5150	-0.45	40.27
5250	-0.11	41.11
5350	0.61	41.98
5450	0.95	42.95
5550	1.12	42.85



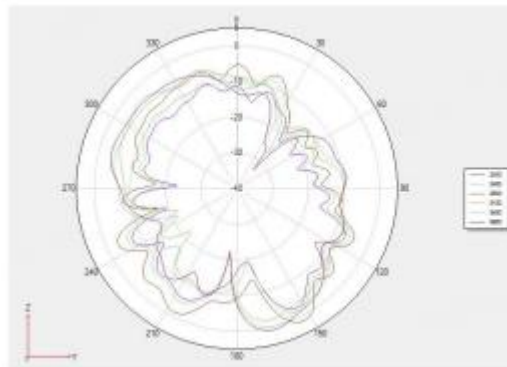
5650	1.36	42.76
5750	1.46	36.22
5850	1.86	36.22

3.2 Radiation Pattern

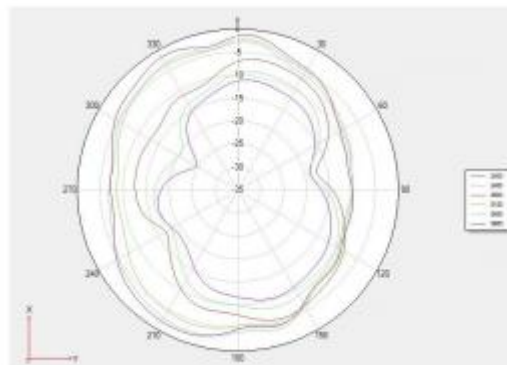
Phi 0 2D



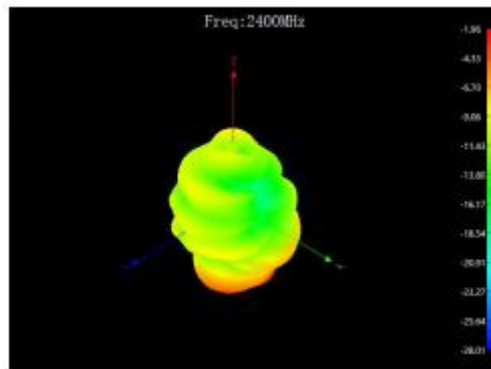
Phi 90 2D



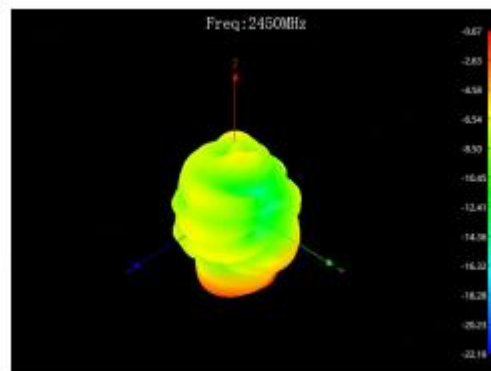
Theta 90 2D



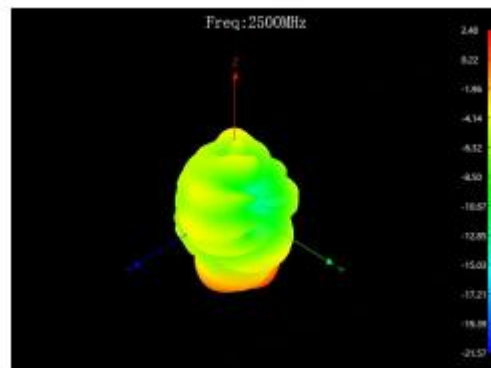
2400MHz 3D



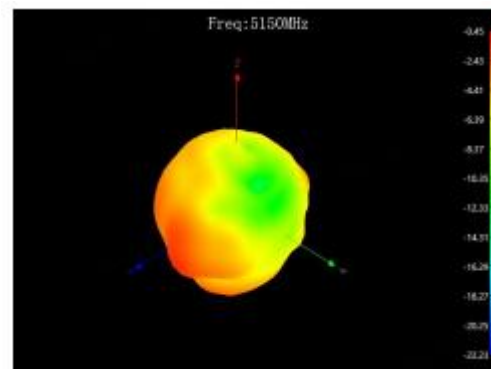
2450MHz 3D



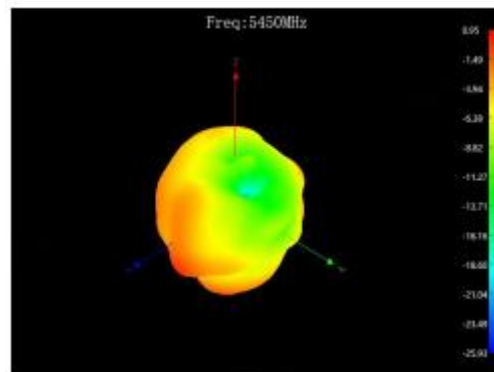
2500MHz 3D



5150MHz 3D



5450MHz 3D



5850MHz 3D

