



Antenna Specification

Manufacture: TUYA

Product Name: WBR3 Antenna

Antenna Type: PCB

Test Date: 2021.05.20

Tested by: Long Wang

Approved by: Licco

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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	WBR3 Antenna
Product model	WBR3
Antenna Type	PCB Antenna
Test Items	Gain; Efficiency; Radiation Pattern
Test Frequency	2400-2500MHz
Test Standard	ANSI/IEEE Std 149-2021

2. Test Configurations

2.1 Test Environment

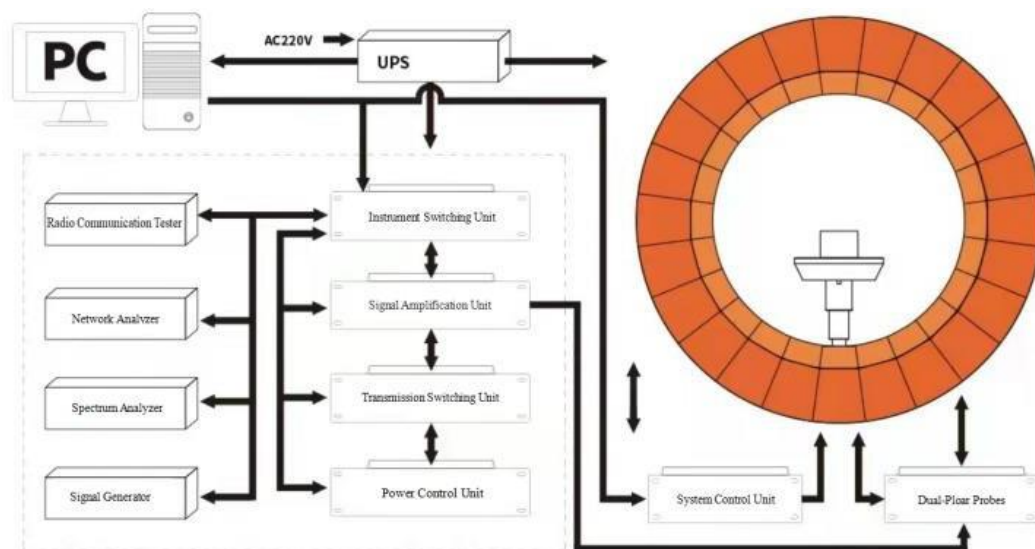
Temperature (°C)	25
Humidity (%RH)	60
Atmospheric Pressure (kPa)	100.5

2.2 Test Equipment

Test System	TEM 24 Multi-probe Microwave Chamber
Test Instrument	Agilent E5071B

Equipment	Manufacturer	Model No.	Last Cal.	Due Date
TEM 24 Multi-probe Microwave Chamber	Microwave Technologies Group	No.1	2020.01.20	2022.01.19
Network Analyzer	Agilent	E5071B	2019.09.25	2021.09.24

2.3 Test Principle





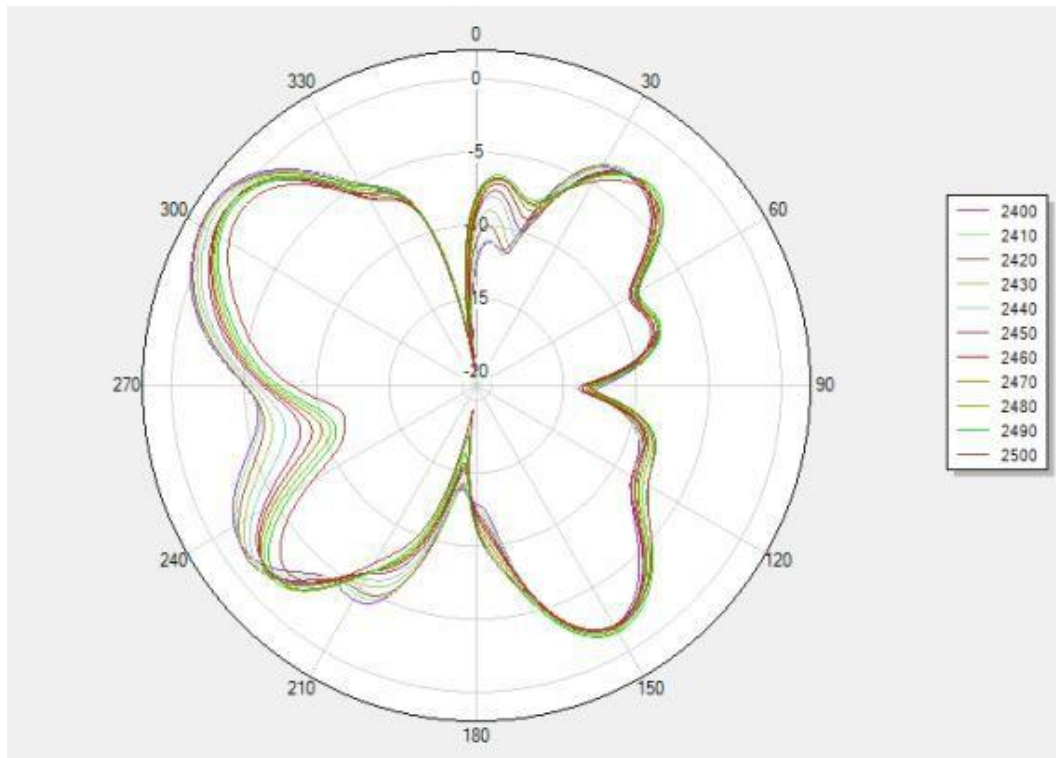
3. Test Results

3.1 Gain and Efficiency

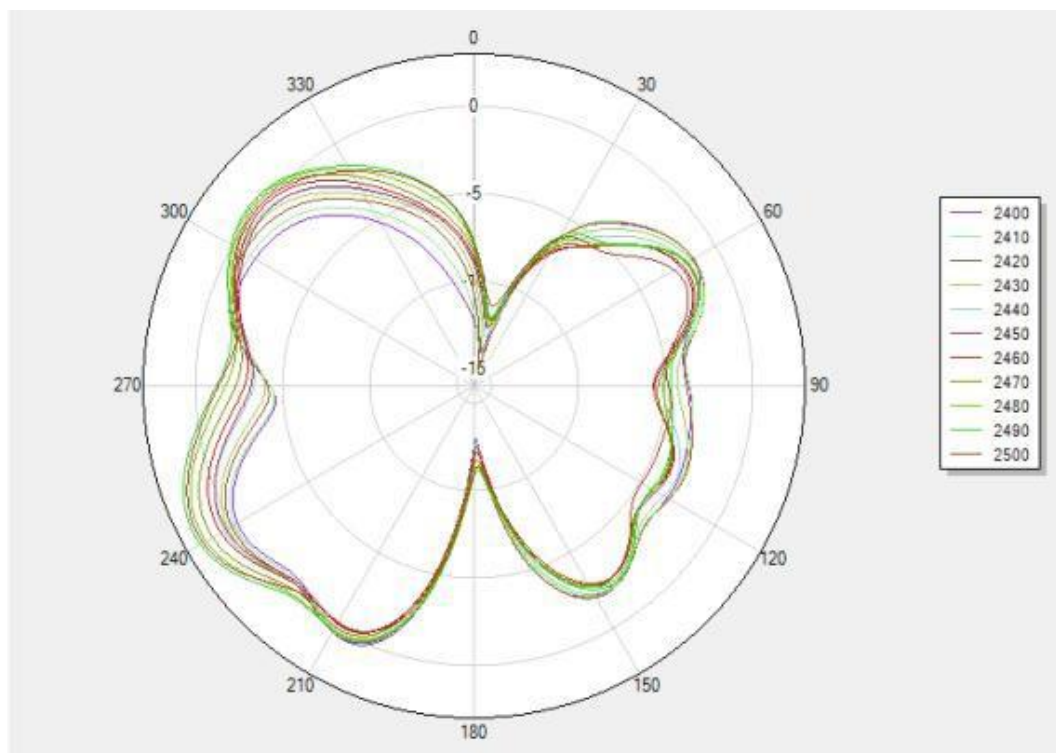
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	1.62	52.29
2410	1.71	52.17
2420	1.93	53.14
2430	1.98	54.16
2440	2.00	57.62
2450	2.17	59.64
2460	2.45	61.55
2470	2.38	60.64
2480	2.54	62.86
2490	2.30	59.85
2500	2.49	60.41

3.2 Radiation Pattern

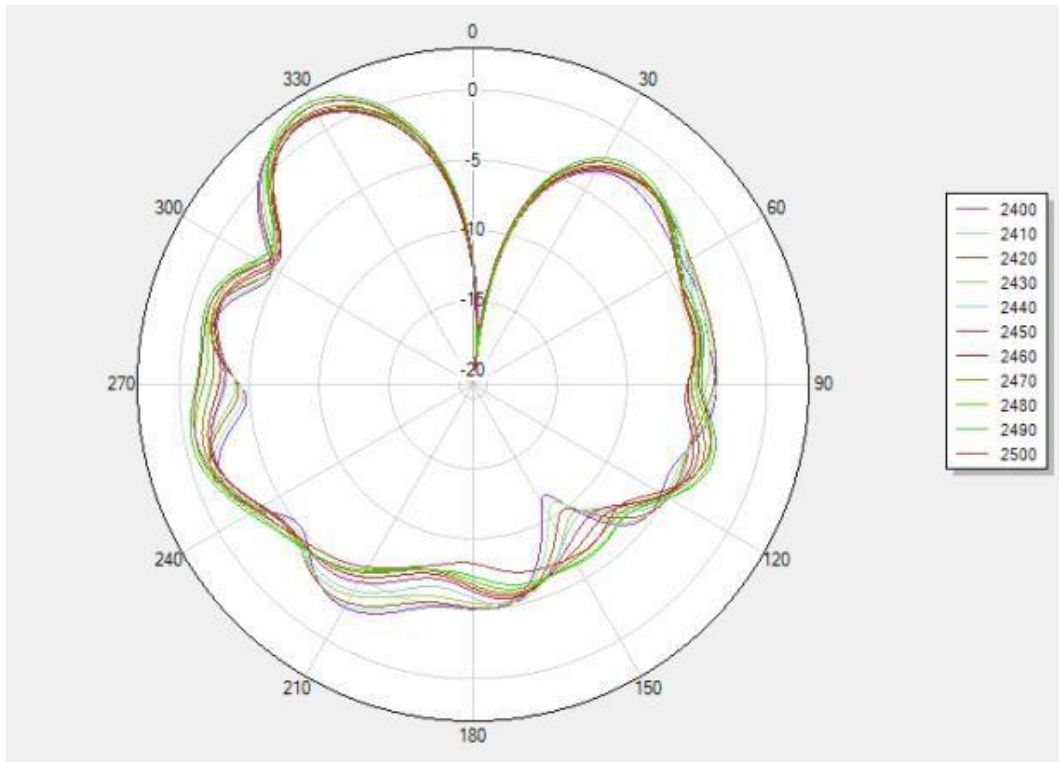
Phi 0 2D



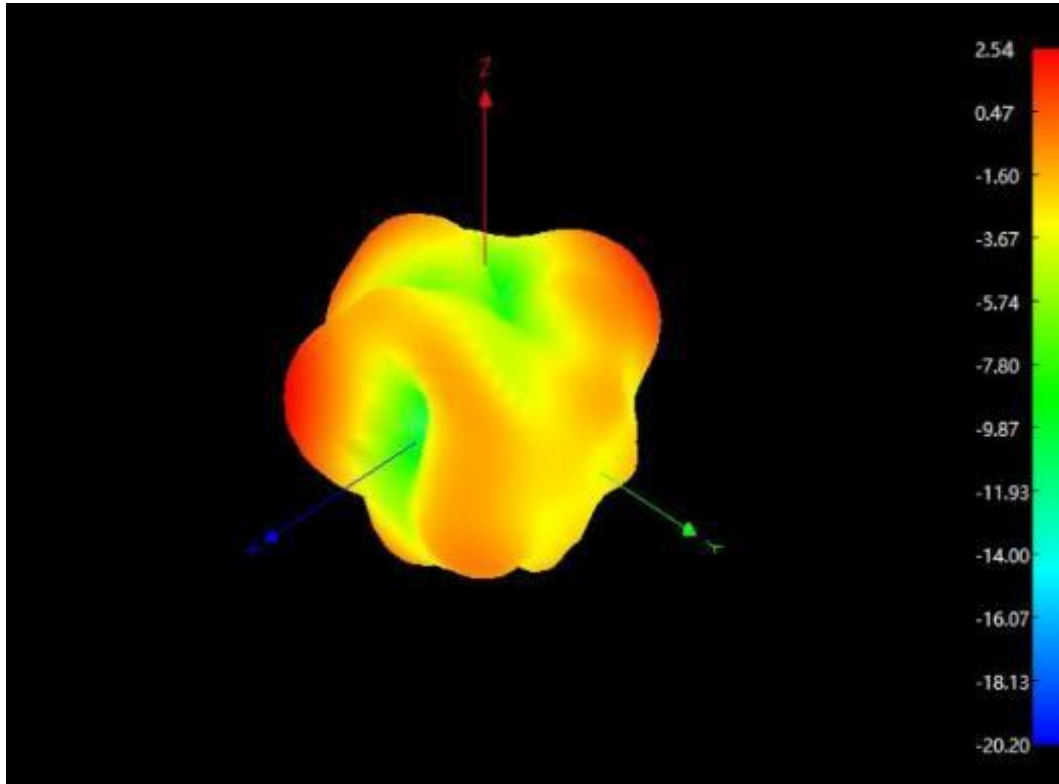
Phi 90 2D



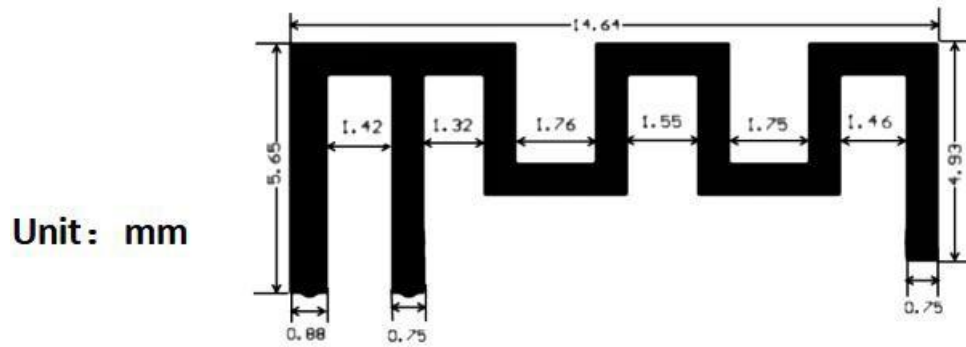
Theta 90 2D



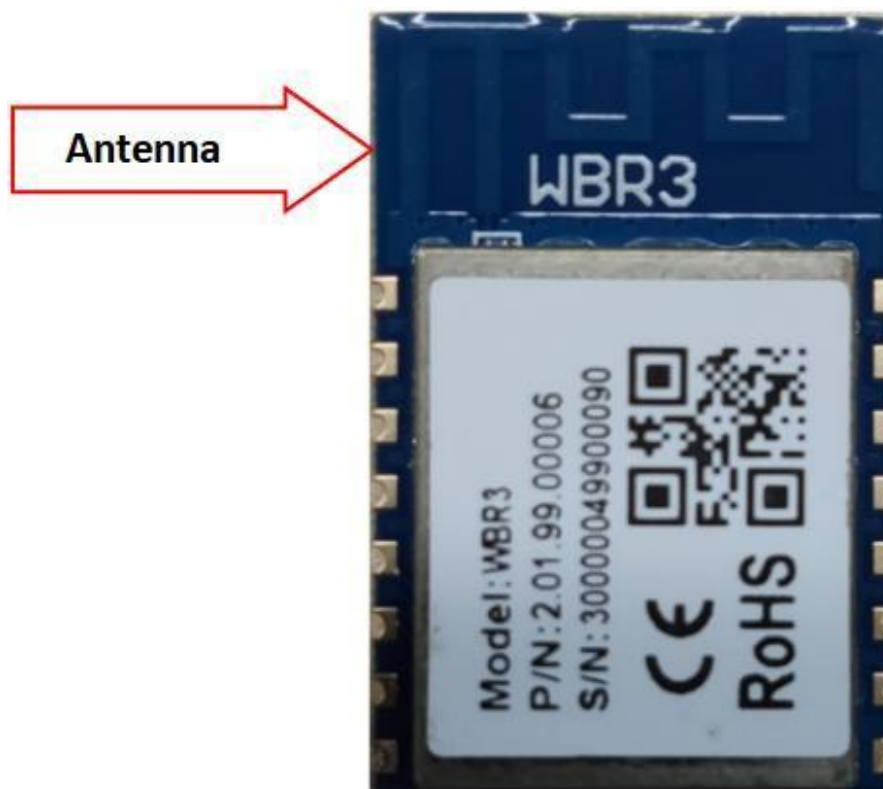
2480MHz 3D



4. Antenna Dimensions



5. EUT Photo



6. Test Procedure

Test Step Flow

1. Maintain the test ambient temperature of 23 ± 2 °C, the instrument is powered on and preheated for more than 30 minutes
2. Turn on the darkroom power supply, connect the test cable, and set up the sample according to the standard
3. Outline sets the test content objectives and conducts calibration tests
4. Run the EMQuest OTA software, the test is complete, export the corresponding test diagram and test data, and save to the corresponding directory

Test Principle

The test principle can be seen in accordance with the standard ANSI/IEEE std 149-2021

Test Conditions

1. The analyte, the network analyzer for testing, the test equipment and the test cable connector should have good reliability, stability, dynamic range and measurement accuracy to ensure the correctness of the measurement accuracy
2. The measuring instrument should have a certificate of conformity and be within the effective calibration period
3. The analyte should be complete and undamaged, and the test environment should be kept clean

6. Test Set up

