

SUNNYWAY TECHNOLOGY(CHINA)

ANTENNA SPEC

Customer name: Shenzhen Aiper Intelligent Co.Ltd.		Entry name: N31
Working band: 2400-2500MHZ, 5150-5850MHZ		
Motherboard version: N31-Main-V1.1 20250814		
Sunnyway Material specification		
Specification type	Sunnyway number	Customer number
WIFI FPC Antenna	SZ25487IV98	

Revision history			
Date of preparation/change	Change content	Altered person	Edition
2025.12.12	First edition release	XU	A

Sunnyway Countersign column				
R&D	ME:	To examine:	QE:	Approval:
	RF:	To examine:		

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1. Project information

1.1 Mockup picture



Description:

The customer will finally verify the antenna performance and keep the machine in our company for at least one year, which is convenient to analyze and solve the abnormal situation in the antenna mass production and ensure the antenna delivery quality.

2. Matching circuit

Antenna matching has not been changed.

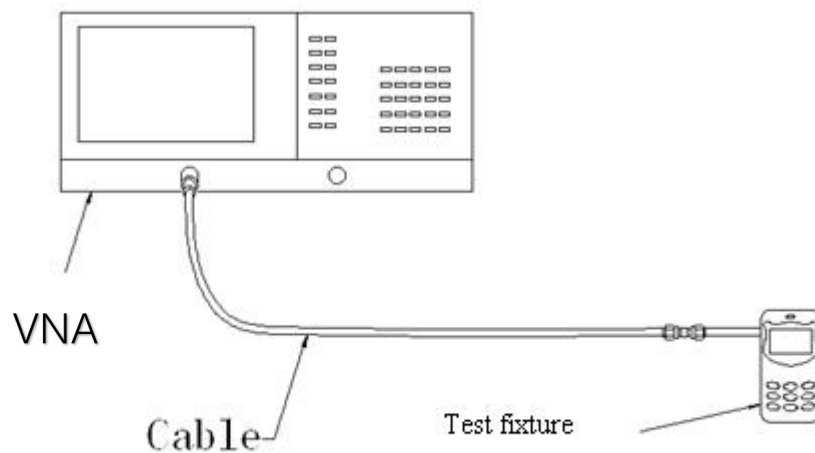
3. Antenna passive testing data

3.1 S11 Description of the test method

Test the equipment: Vector network analyzer (Agilent E5071C)

Test methodology: Use a 50 ohm CABLE cable to export from the instrument test port, use the calibration piece to calibrate and connect the SMA connector of the test fixture, and record the return loss and standing wave ratio corresponding to the relevant frequency point.

Below is a schematic picture of the test:



Test schematic diagram

3.2 N30-S11 Test parameters

(Freq.) MHz	2400	2500	5150	5850
VSWR	1.64	1.26	1.55	1.14

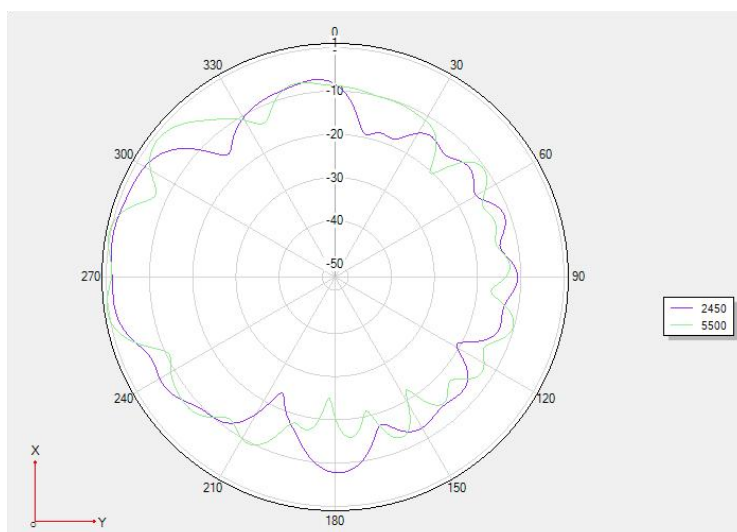
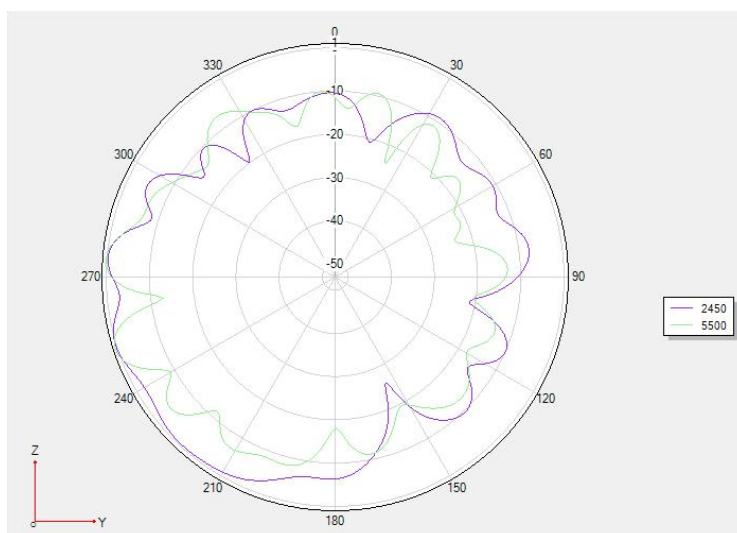
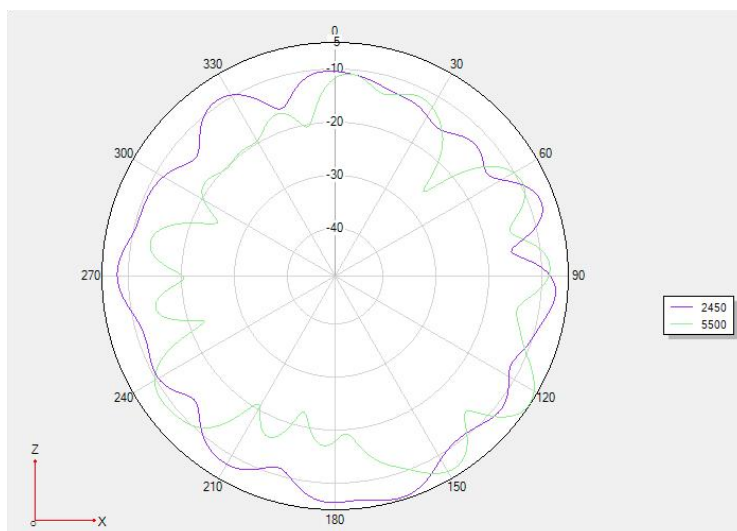
VSWR

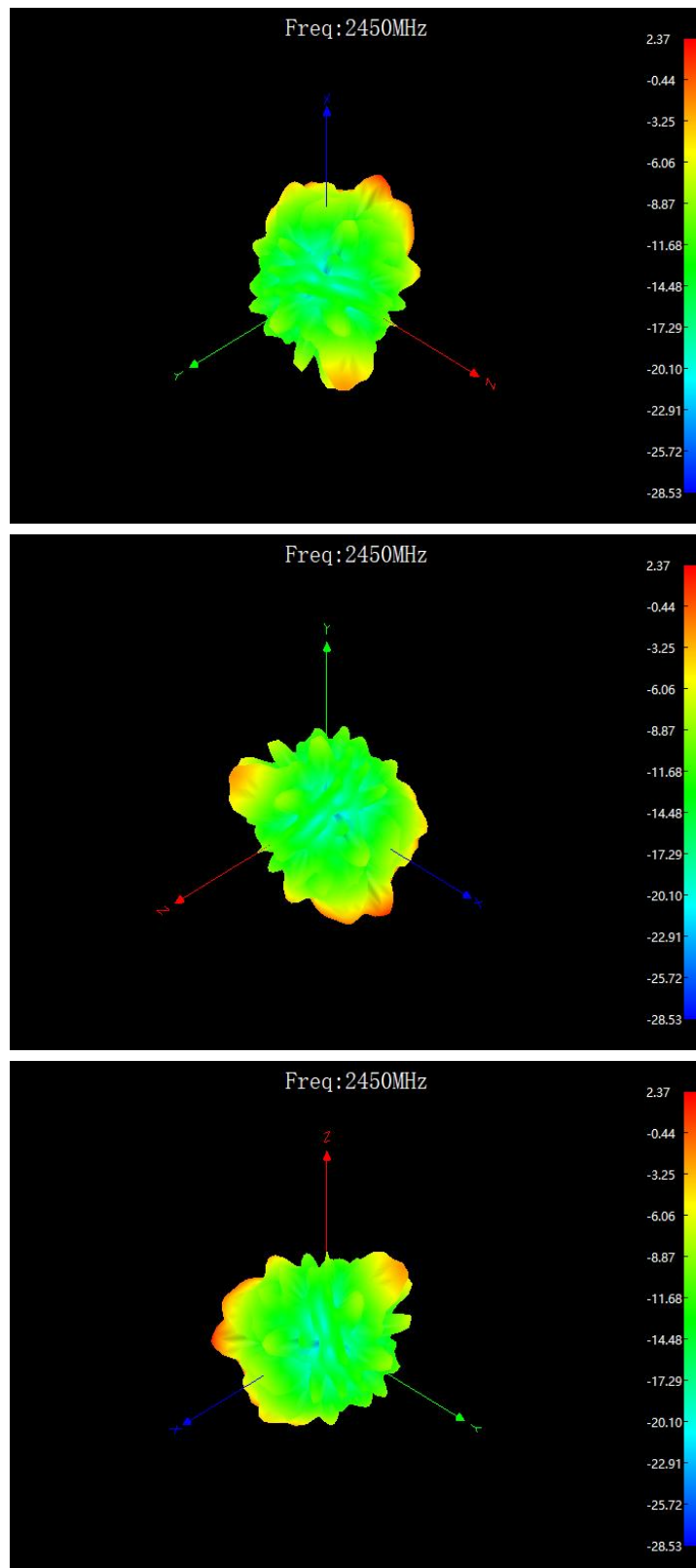


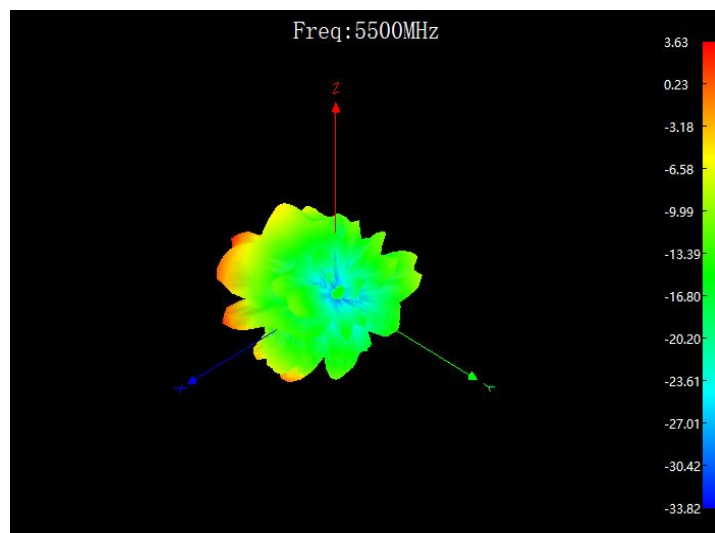
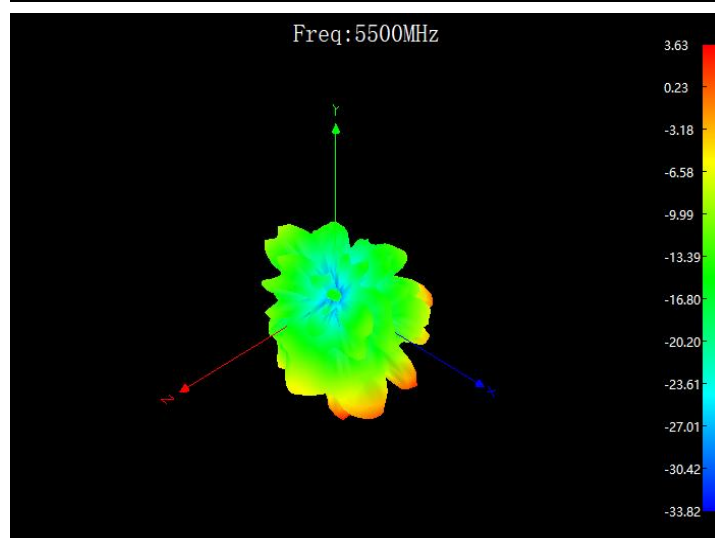
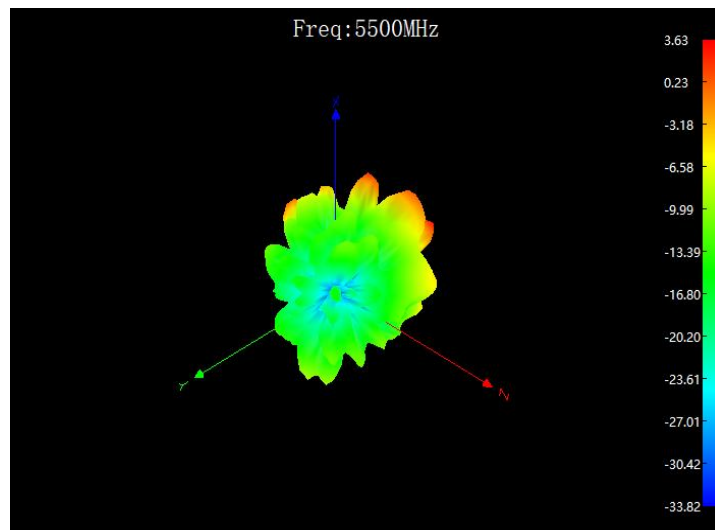
3.3 N30- Antenna efficiency and gain

Frequency/Mhz	MaxGain/dBi	Efficiency / %
2400	1.98	51.03
2410	1.84	50.79
2420	2.9	51.22
2430	2.1	50.96
2440	2.27	51.68
2450	2.37	50.64
2460	1.6	52.59
2470	1.4	52.84
2480	1.93	51.72
2490	1.76	51.03
2500	2.16	52.72
5150	2.1	47.38
5200	1.87	48.9
5250	2.68	48.11
5300	3.22	47.35
5350	3.12	48.35
5400	3.68	46.44
5450	3.3	47.12
5500	3.63	47.12
5550	3.39	47.76
5600	3.41	46.78
5650	3.45	46.89
5700	3.06	45.64
5750	3.46	46.91
5800	3.39	48.42
5850	3.02	47.25

2D Pattern







4. Antenna active testing data

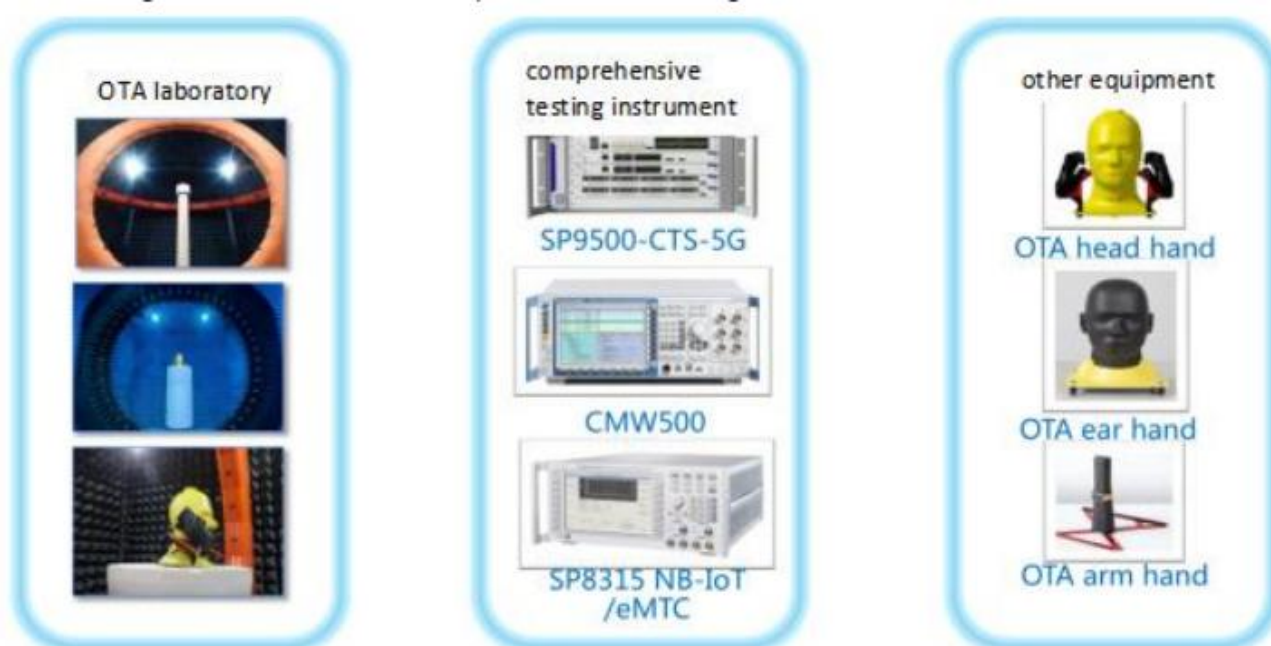
4.1 Test the environment

Test the system: Multi-probe OTA measurement system (XH-IoT)

Test the environment: Temperature $22^{\circ}\text{C}\pm 3^{\circ}\text{C}$, humidity $50\%\pm 15\%$

Test the equipment: When testing passive data, use the network analyzer R&S ZND/ Agilent E5071C

When testing active data, use the Agilent 8960/CMW500/SP9500E/SP8315



5. Environmental treatment methods

No additional environmental treatment I added

6. Standard for mass production antennas

When the antenna is mass-produced, the VSWR is used as the mass production test standard.

According to the differences in the project itself, the following criteria are given:

Freq. (MHz)	Mass production standards
2400-2500MHz	$\text{VSWR (Production performance)} < \text{VSWR (Confirmed performance)} + 0.5$
5150-5850MHz	$\text{VSWR (Production performance)} < \text{VSWR (Confirmed performance)} + 0.5$

7. Engineering drawings

