

SUNNYWAY TECHNOLOGY(CHINA)

ANTENNA SPEC

Customer name: Autel Intelligent Technology Corp., Ltd.		Entry name: PS2311
Working band: 433.92MHz		
Motherboard version:		
Sunnyway Material specification		
Specification type	Sunnyway number	Customer number
Built in metal antenna	SZ24110IA70	501015655

Revision history			
Date of preparation/change	Change content	Altered person	Edition
2025.02.19	New issue	Chen Min	A

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

Customer will sign the column			
Electronic Engineer	Project manager	Structural Engineer	Quality Engineer

Sunnyway Technology(CHINA)

Add: 1F, Building 4, No.215-99, GaoGuang Road, QingPu District, Shanghai, China

Tel: +86-021-6083 5368 Fax: +86-021-6484 2328

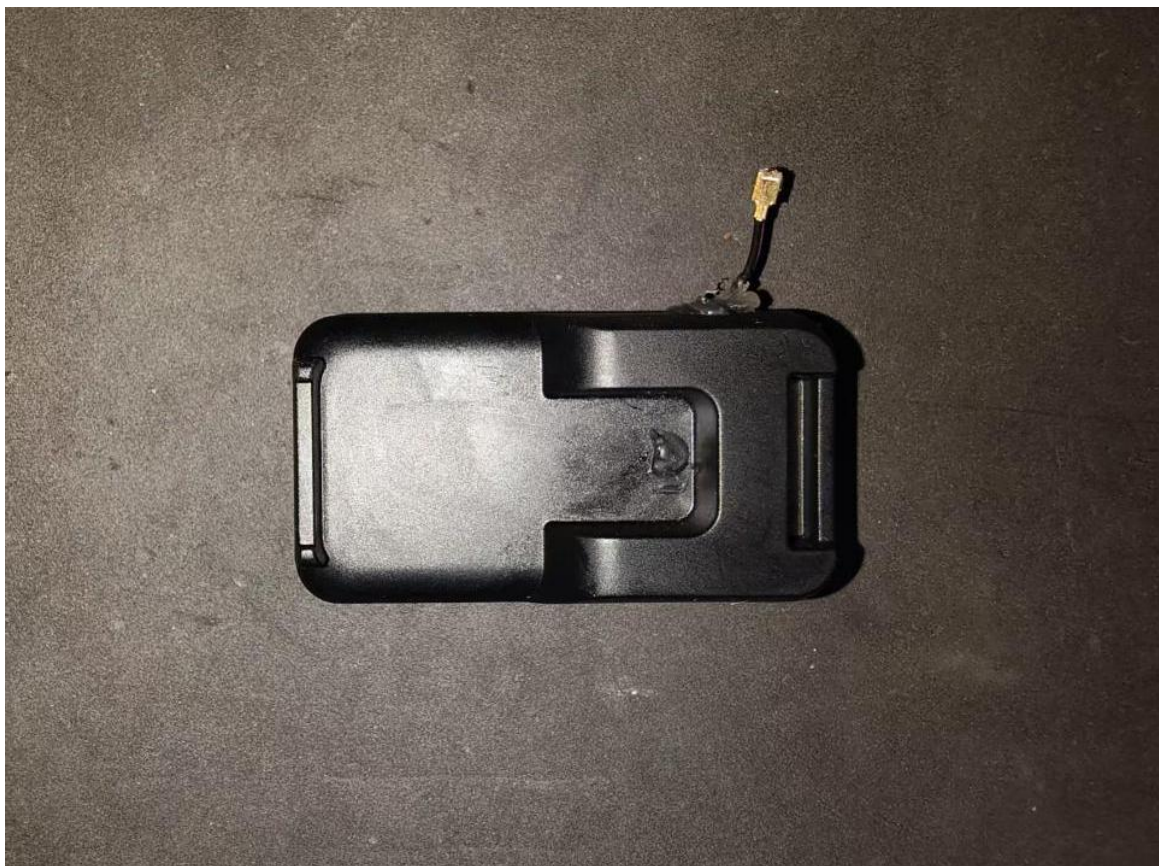
Email: sales@sunnyway-iot.com Web: www.sunnyway-iot.com

Directory

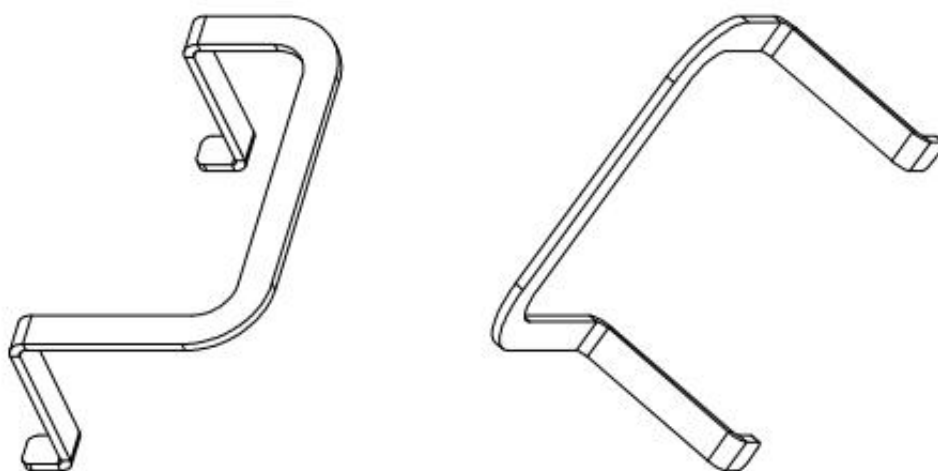
ANTENNA SPEC	1
1. Project information	3
1.1 Mockup picture	3
1.2 Antenna product picture	3
2. Electrical performance	4
3. Antenna passive testing data	4
3.1 S11 Description of the test method	4
3.2 Test the environment	5
3.3 S11 Test parameters	6
3.4 Antenna efficiency and gain	7
3.5 radiation pattern	7
4. Environmental treatment methods	8
5. Standard for mass production antennas	8
6. Engineering drawings	9

1. Project information

1.1 Mockup picture



1.2 Antenna product picture



2. Electrical performance

Frequency range (MHz)	420MHz-450MHz
peak gain (dBi)	-1.96dBi
VSWR	< 2.0 (Inside the device)
Return Loss	< -10 dB (Inside the device)
efficiency (%)	20%-30%
Polarization mode	linear polarization
radiation pattern	Omnidirectional
Output Impedance (Ω)	50

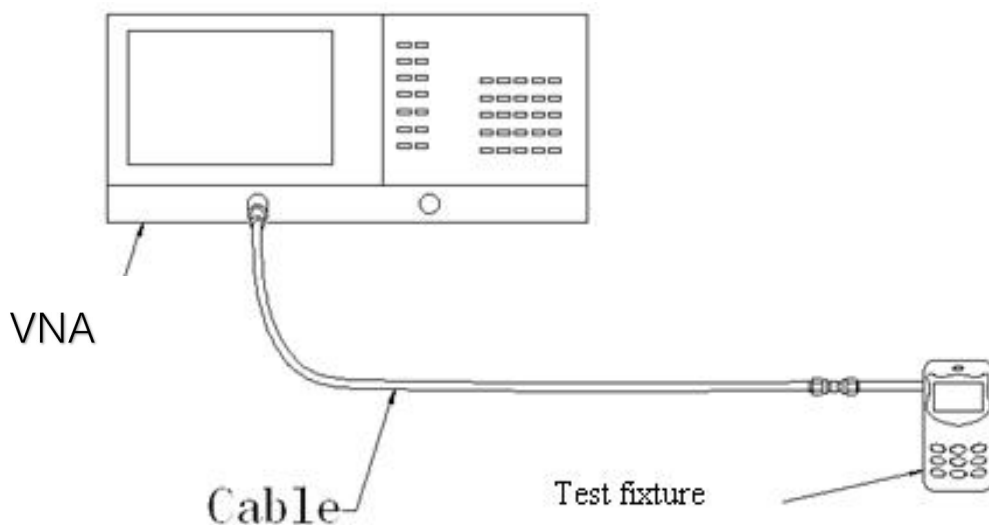
3. Antenna passive testing data

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 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

OTA实验室



综测仪器



SP9500-CTS-5G



CMW500



SP8315 NB-IoT
/eMTC

其他设备



OTA head hand



OTA ear hand

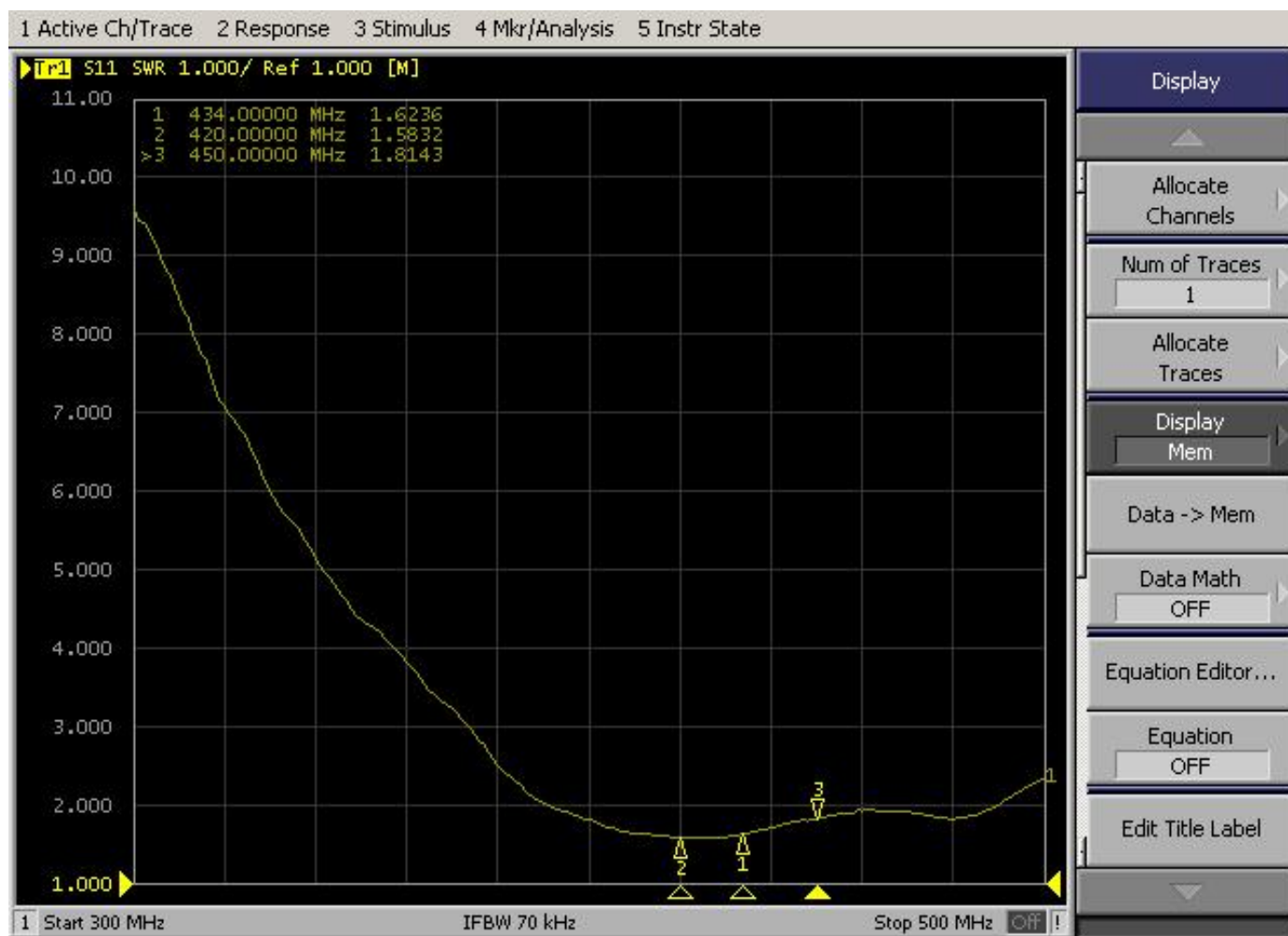


OTA arm hand

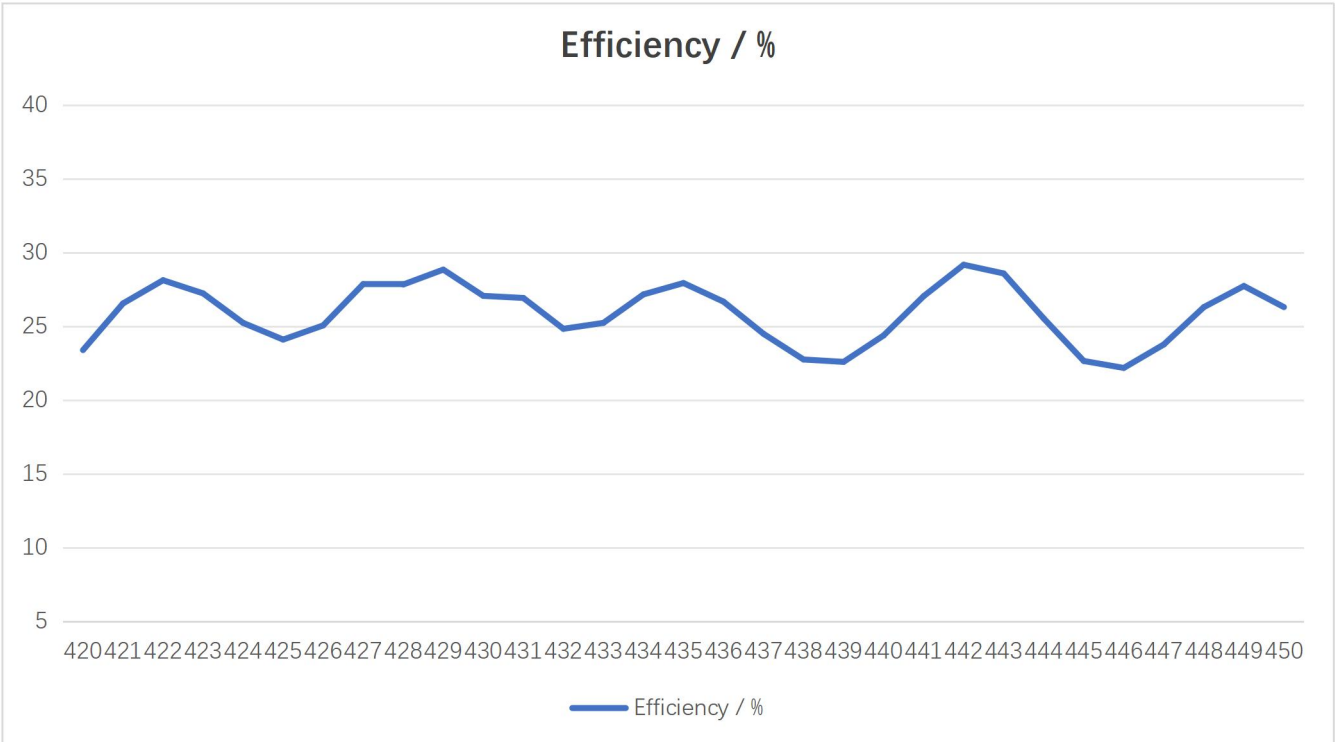
3.3 S11 Test parameters

(Freq.) MHz	420	434	450
VSWR	1.58	1.62	1.81

VSWR

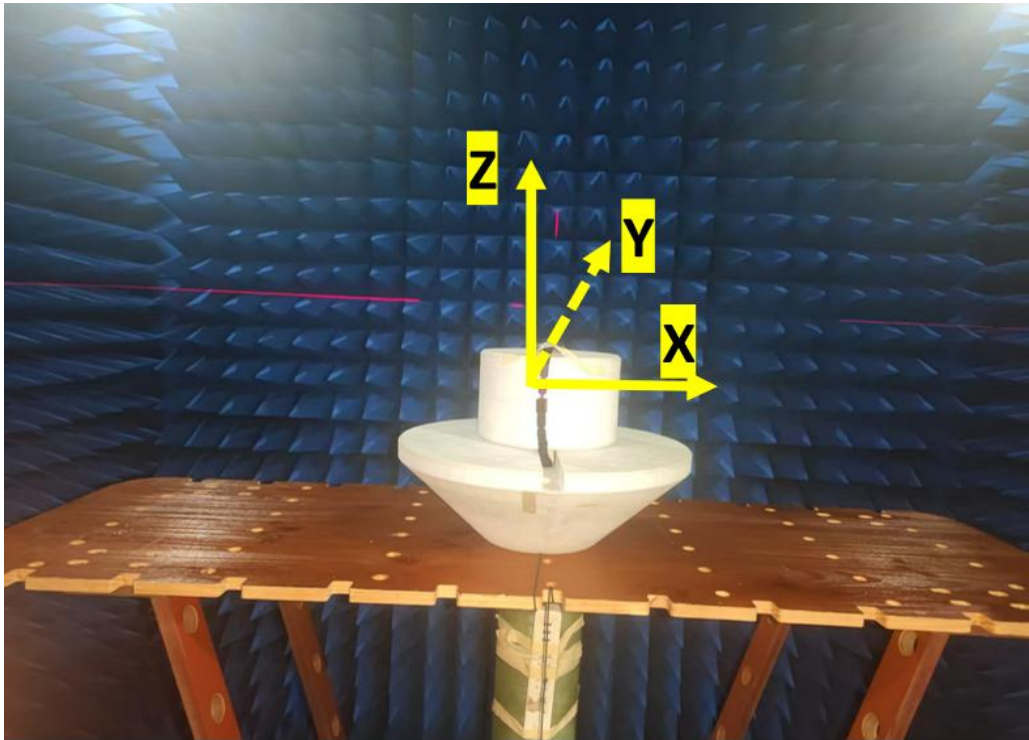


3.4 Antenna efficiency and gain

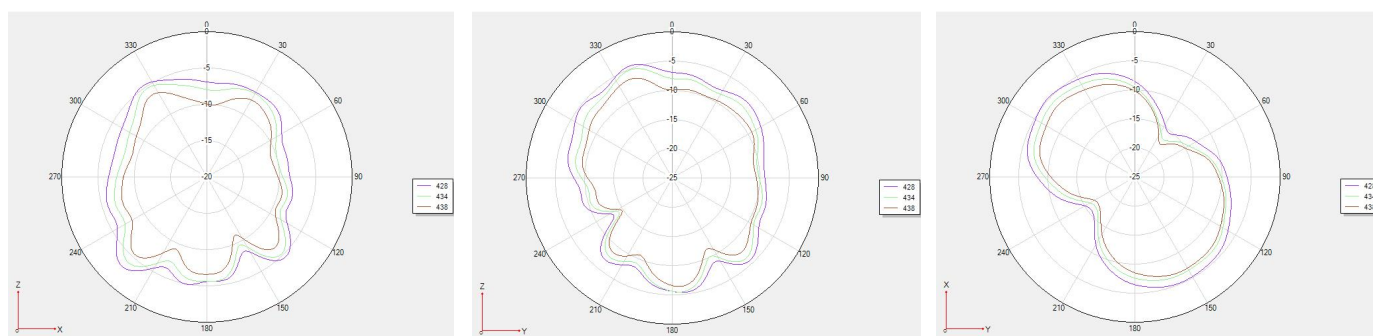


Freq.(MHz)	420-450		
/	Min	MAX	AVE
Effi(%)	22.18	29.17	25.92
Peak Gain(dBi)	-4.06	-1.96	-3.07

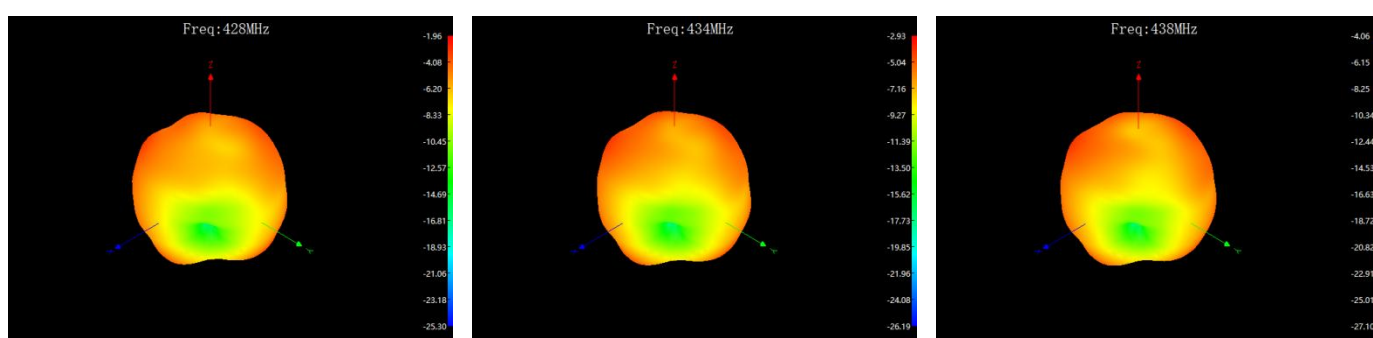
3.5 radiation pattern



2D direction diagram



3D direction diagram



4. Environmental treatment methods

not have

5. 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
420-450	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) \pm 0.5$

6. Engineering drawings

