

Technical Description

The Equipment Under Test (EUT) is a 2.4GHz Wi-Fi and BLE Transceiver for a smart indoor pan & tilt camera. The EUT is powered by 5VDC USB port.

Wi-Fi Portion

Antenna Type: Internal, Integral antenna

Antenna Gain: 2.3dBi

Operating Mode	Nominal Power	Range of Peak Conducted Power
802.11b	15.88dBm	9dBm to 22dBm
802.11g	12.59dBm	9dBm to 22dBm
802.11n(HT20)	12.20dBm	9dBm to 22dBm

BLE Portion

Antenna Type: Internal, integral

Antenna Gain: 2.3dBi

Nominal Conducted Power: 0.7dBm

Range of Peak Conducted Power: -10dBm to 14dBm

The brief circuit description is listed as follows:

1. U2 (AK3918E) acts as MCU
2. Y2 acts as 24MHz Oscillator
3. U8 (ATBM6012B) acts as RF IC
4. C31, C35, C110 and R61 act as antenna matching circuit
5. U14 (RTL8201F) provides Ethernet function.

Shenzhen SKYLink Technology Co.,Ltd

Antenna Specification for Approval

Customer Name: _____

Product Name: _____ 2.4G/5.8G WIFI Antenna

Part NO.: _____ TY06

Write By: _____ Damon Cui

Issued Date: _____ 2024.08.12

Customer

R&D Dept	Business Dept	Approved By

SKYLink

R&D Dept	Engineer Dept	Approval

● Specification Summary

A. Electrical Characteristics	
Frequency	2400MHz ~2500MHz 5150MHz ~5850MHz
Return Loss	<-10 dbi
Efficiency	>50%
Peak Gain	2.3dbi
Impedance	50 Ohm
Polarization	Line
B. Material & Mechanical Characteristics	
Material of Radiator	/
Cable Type	/
Connector Type	/
Dimension	At Attachment
Heat-durability	280±5°C, 10sec.
C. Environmental Characteristics	
Operation Temperature	- 20 °C ~ + 80 °C
Storage Temperature	- 30 °C ~ + 85 °C

● Test Equipment & Conditions

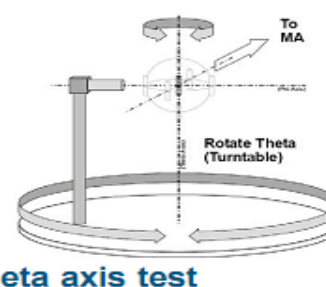
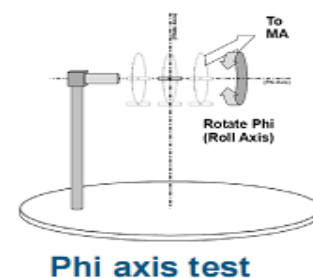
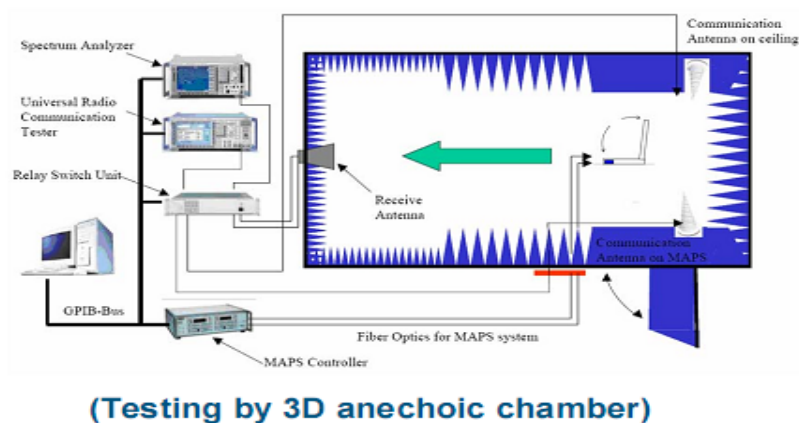
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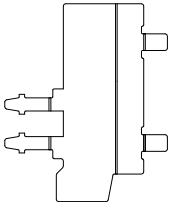
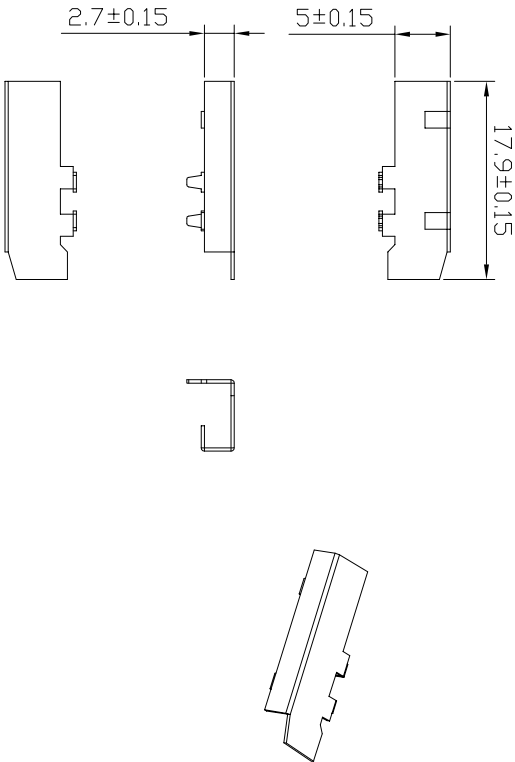
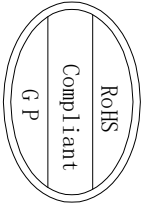
Agilent 8753D 5071B

Communications Test Set:

Agilent E5515C CMW500

2. 3D Chamber Test System

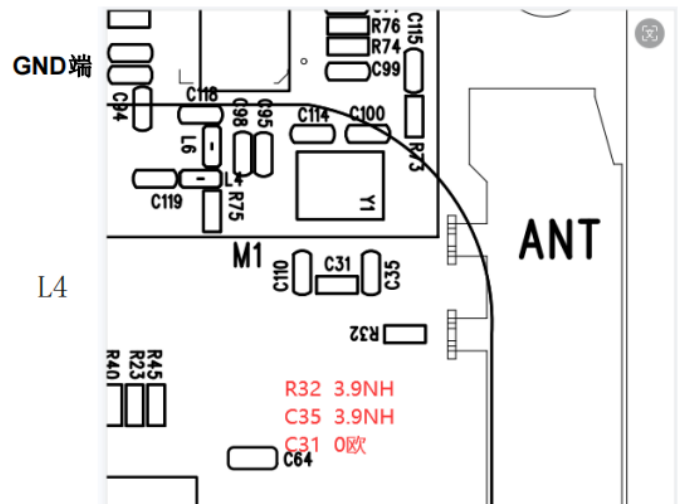
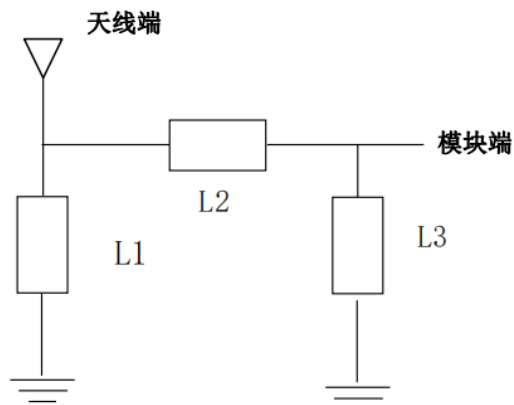




1	2	3	4	5	6	7	8
A				A			
B				B			
C				C			
D				D			
Rev				Rev			
A				A			
New drawing				New drawing			
Description				Description			
1				1			
2				2			
3				3			
Date				Date			
Remark				Remark			
Location				Location			
40~				40~			
30~40				30~40			
18~30				18~30			
10~18				10~18			
0~10				0~10			
Third Angle				Third Angle			
Project				Project			
Part Name				Part Name			
TY06				TY06			
Material				Material			
DWG No.				DWG No.			
Date				Date			
Designed by				Designed by			
MD				MD			
Checked by				Checked by			
RF				RF			
Approved by				Approved by			
Unit				Unit			
mm				mm			
Scale				Scale			
1:1				1:1			
Rev				Rev			
A				A			

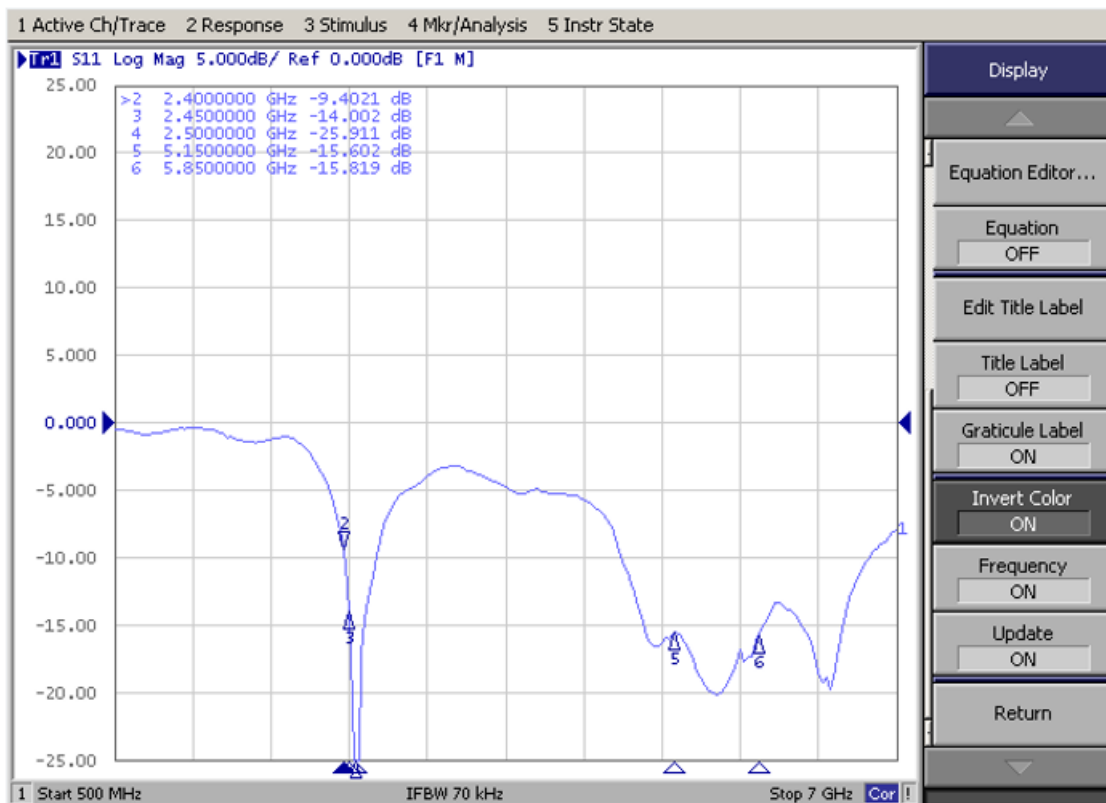
SHEN ZHEN SKYLINK CO., LTD

◆ matching circuit



	值
L1 (0402)	3.9NH
L2 (0402)	0欧
L3 (0402)	/
L4 (0402)	3.9NH

◆ Return Loss



◆ Gain & Efficiency

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
2400	55.11	2.23	5000	56.49	1.46
2410	56.47	2.07	5050	57.8	1.85
2420	54.84	1.89	5100	55.15	1.14
2430	55.25	1.51	5150	53.67	0.79
2440	56.05	1.42	5200	53.06	0.18
2450	53.03	0.89	5250	54.03	-0.39
2460	53.37	0.71	5300	55.54	-0.27
2470	54.54	0.12	5350	54.77	-0.11
2480	54.37	0.06	5400	52.92	-0.45
2490	55.25	-0.04	5450	51.42	-1.05
2500	56.8	0.1	5500	51.61	-0.7
			5550	50.56	-0.44
			5600	53.5	-0.05
			5650	53.76	0.11
			5700	54.05	0.2
			5750	55.57	0.59
			5800	55.82	0.63
			5850	54.94	1.28

◆ TRP &TIS

2.4G

B:

Test Result	Wifi 2G TRP			Test Result	Wifi 2G TIS		
	1	6	11		1	6	11
Frequency (MHz)	2412	2437	2462	Frequency (MHz)	2412	2437	2462
TRP (dBm)	16.09	16.33	16.38	TIS (dBm)	-79.35	-81.04	-79.66

G:

Test Result	Wifi 2G TRP			Test Result	Wifi 2G TIS		
	1	6	11		1	6	11
Frequency (MHz)	2412	2437	2462	Frequency (MHz)	2412	2437	2462
TRP (dBm)	12.04	12.51	12.47	TIS (dBm)	-64.09	-64.19	-64.16

N:

Test Result	Wifi 2G TRP			Test Result	Wifi 2G TIS		
	1	6	11		1	6	11
Frequency (MHz)	2412	2437	2462	Frequency (MHz)	2412	2437	2462
TRP (dBm)	14.45	14.74	14.35	TIS (dBm)	-63.2	-63.28	-63.75

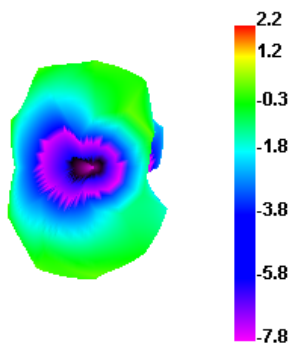
5.8G

N:

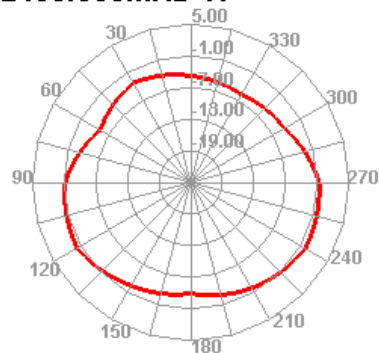
Test Result	Wifi 5G TRP			Test Result	Wifi 5G TIS		
	36	149	161		36	149	161
Frequency (MHz)	5180	5745	5805	Frequency (MHz)	5180	5745	5805
TRP (dBm)	13.8	13.71	13.61	TIS (dBm)	-64.29	-64.97	-64.29

◆ Radiation Pattern

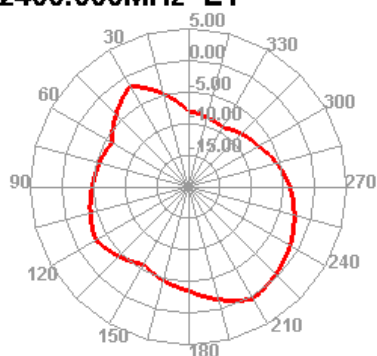
2400.000MHz



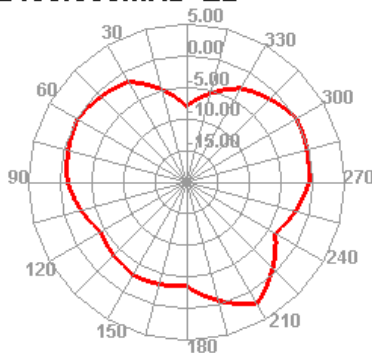
2400.000MHz H



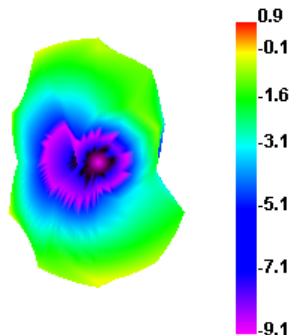
2400.000MHz E1



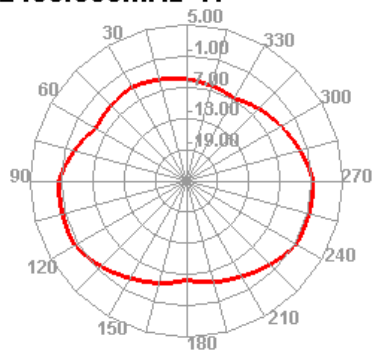
2400.000MHz E2



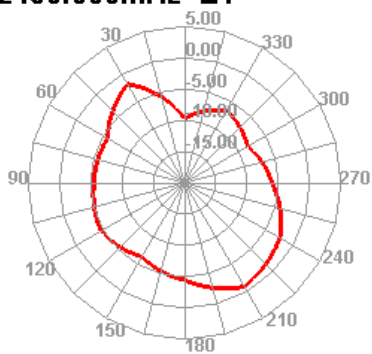
2450.000MHz



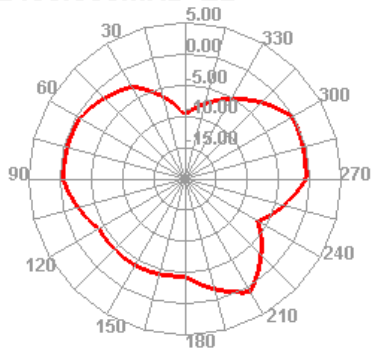
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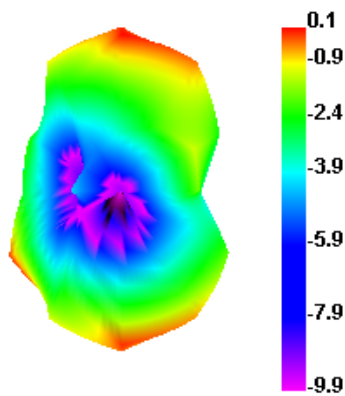
2450.000MHz E1



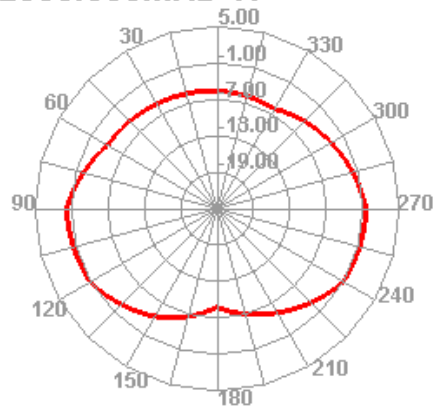
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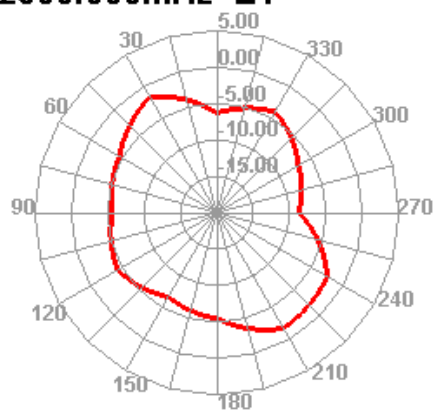
2500.000MHz



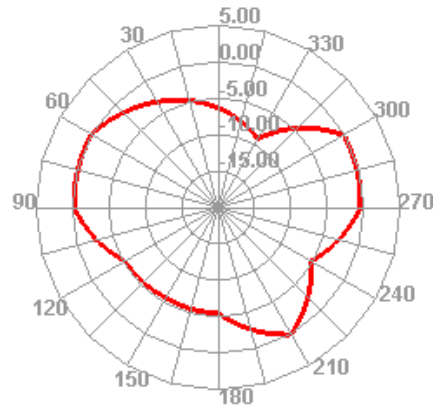
2500.000MHz H



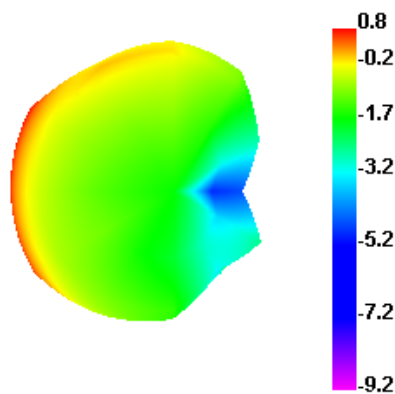
2500.000MHz E1



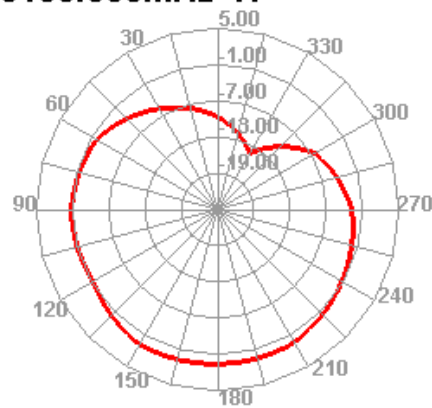
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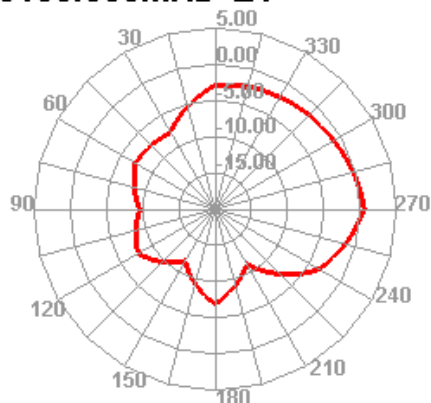
5150.000MHz



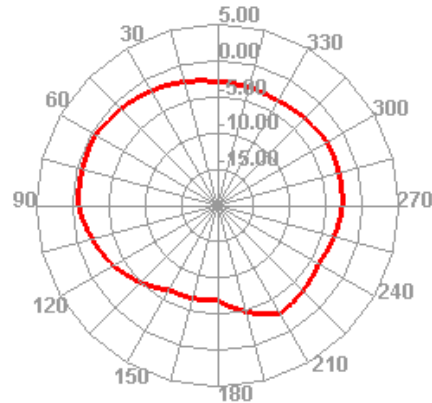
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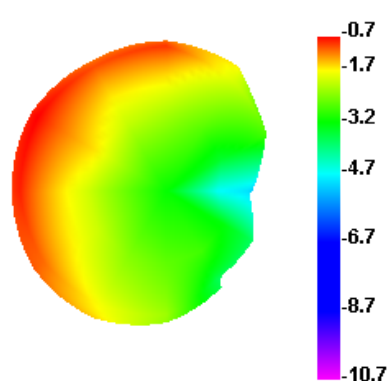
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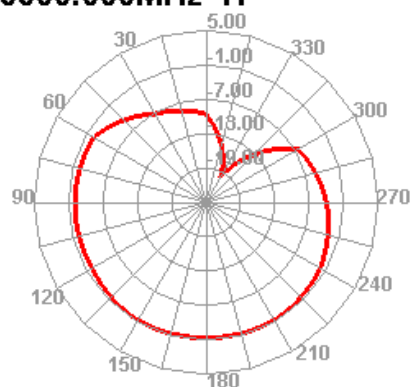
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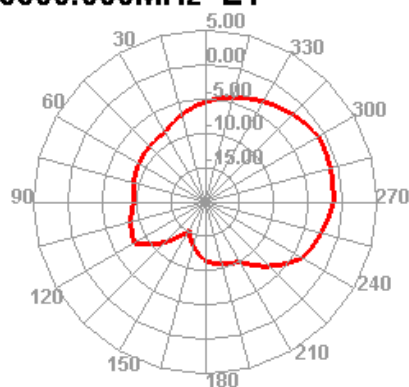
5500.000MHz



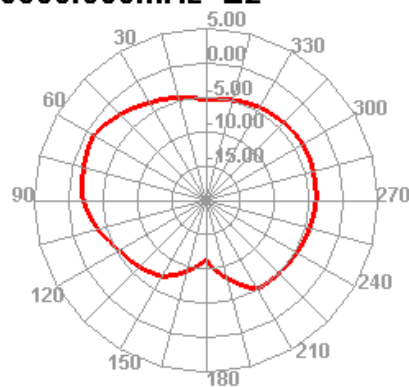
5500.000MHz H



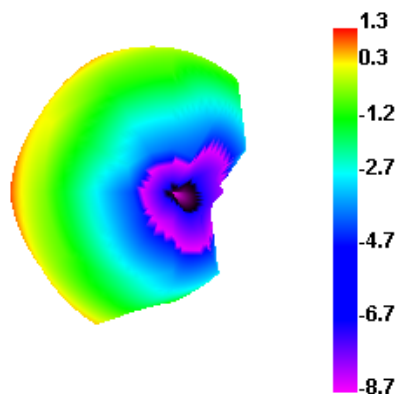
5500.000MHz E1



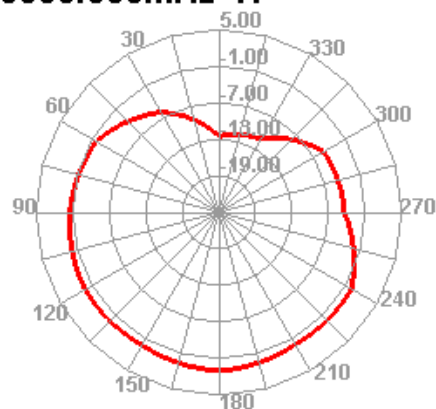
5500.000MHz E2



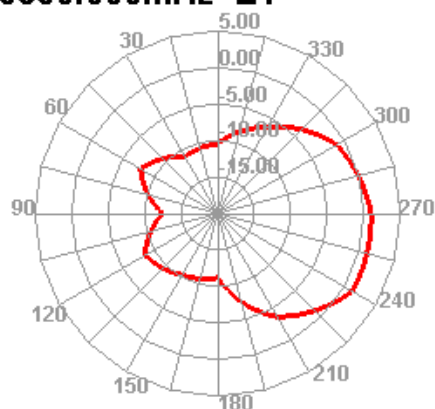
5850.000MHz



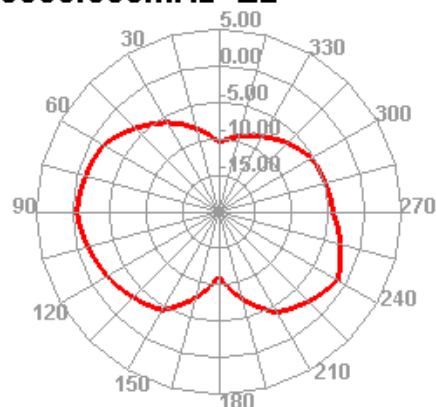
5850.000MHz H



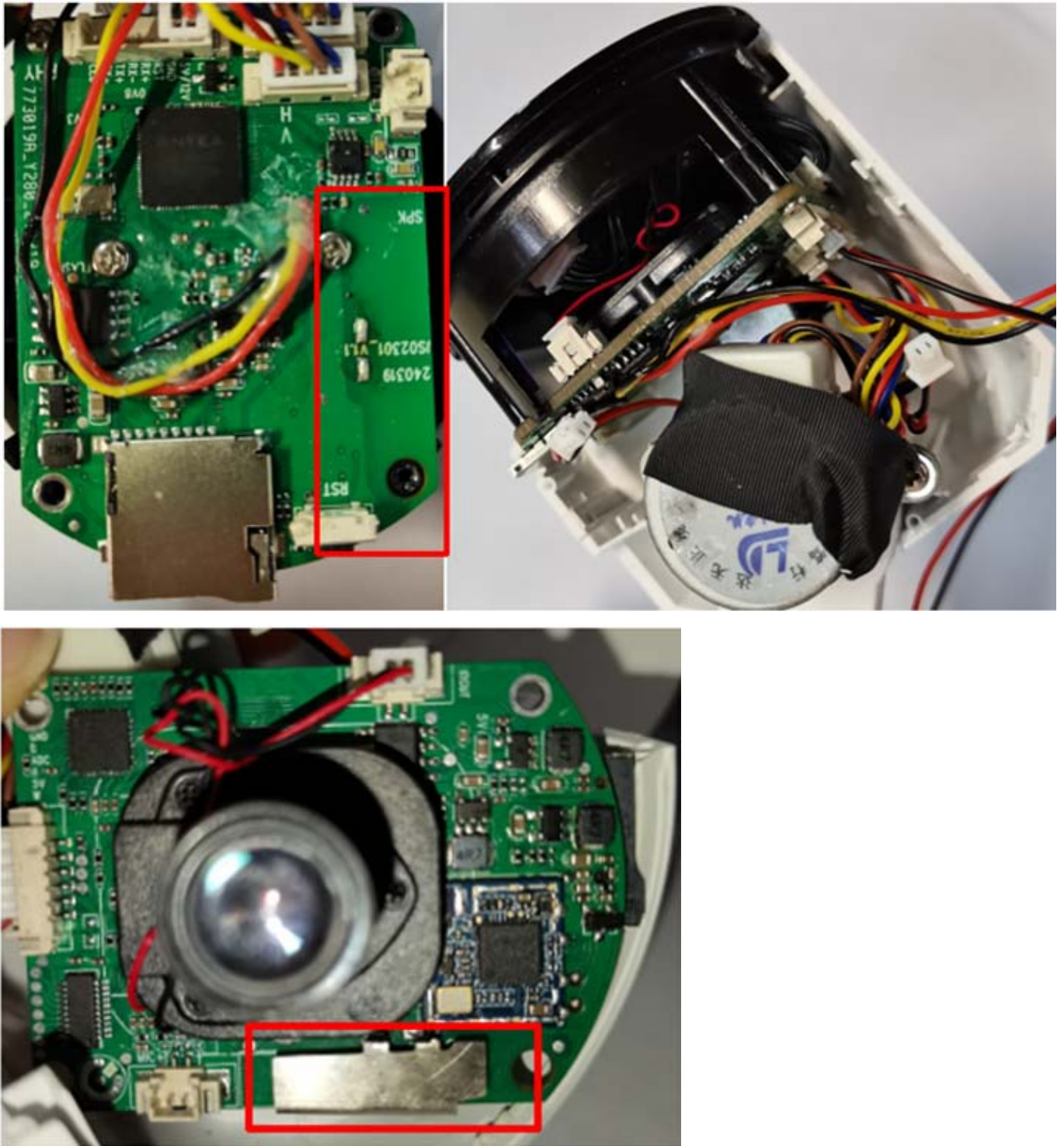
5850.000MHz E1



5850.000MHz E2



◆ Antenna Picture



◆ Reliability Test

Test Item		Test condition	Equipment	Specification	Result
1	Low Temp. Storage Test	Temperature: -30℃, Time:48hrs Test condition: Placing antenna in a Low/High Temperature Chamber, keep the temp is 25℃ and humidity is 65% for one hour, then step-down the temp. to -30℃ in one hour, store antenna for 44 hours; step-up temp to 25℃,test antenna after 2 hours.	Temp.&Humi. Tester	No material deformation is allowed. Electronic Performance is ok .	PASS
2	High Temp./High Humid Storage Test	Temperature: 85℃ Humidity: 85% RH Time:48hrs Test condition: Placing antenna in a Low/High Temperature Chamber, keep the temp is 25℃ and humidity is 65% for one hour, then step-up the temp. to 80℃ and the humidity up to 85% in one hour, store antenna for 44 hours; step-down temp to 25℃,test antenna after 2 hours.	Temp.&Humi. Tester	No material deformation is allowed. Electronic Performance is ok .	PASS
3	Salt-Spray 6 pray Test	Placing antenna in the Salt-Spray Tester ,set the test condition , Temp: 35±2℃ Humidity: 85% NaCl salt spray :5 ±1 %.PH value :6.5~7.2 Test time:24hours	Salt-Spray Tester	No color change No appear rusting	PASS