Shenzhen Lejin radio frequency technology Co., LTD

SPECIFICATIONS FOR APPROVAL

Customer Name: Nanjing Horizon Robotics Technology Co., Ltd

Product Name: WIFI Antenna

Product Model: X3

Part Number: LJF02-22073008-R0A

Write By : Huxuwen

Issued Date: 2022-07-30

CUSTOMER

ENGINEER R&D DEPT	BUSSINESS DEPT	APPROVAL

LEJIN

R&D DEPT	ENGINEER DEPT	APPROVAL

REV	MODIFIED DESCRIPTION	DATE	REMARK
V1.0	Initial Draft Release	2022/07/30	

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3.Product Specification

A. Electrical Characteristics	
Frequency	2400MHz ~2500 MHz 5150MHz ~5850 MHz
VSWR	<2.0
Efficiency	≥40%
Impedance	50Ohm
Polarization	Linear
Gain(2.4GHz)	≤2.0dB
Gain(5.8GHz)	≤2.5dB
B. Material & Mechanical Characteristics	
Material of Radiator	PCB(Black)
Cable Type	Φ1.13mm,L50mm,Black
Connector Type	IPX1
Dimension	49.0*14.0mm
C. Environmental	
Operation Temperature	- 20 ˚C ~ + 70 ˚C
Storage Temperature	- 30 ˚C ~ + 85 ˚C
Humidity	40%~95%

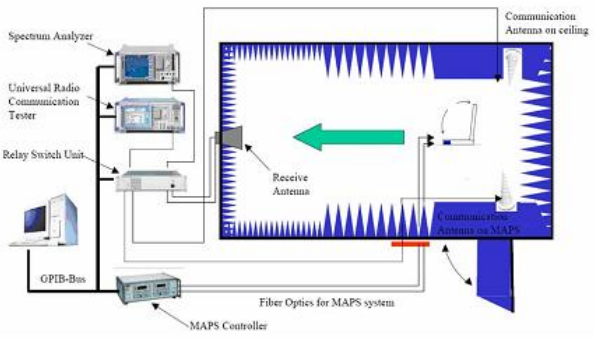
4.Test Equipment & Conditions

1.Network Analyzers Agilent 8753D/5071C

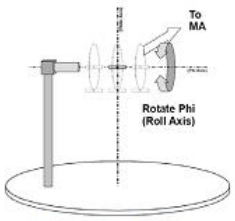
2.HSPA and LTE protocol test set R&S CMW500 -PT

3.Communications Test Set Agilent 8960

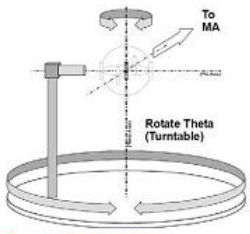
4.3D Chamber Test System



(Testing by 3D anechoic chamber)



Phi axis test



Theta axis test

Chart 1 Test topology

5.Test Report

5.1 Voltage Standing Wave Ratio(VSWR).

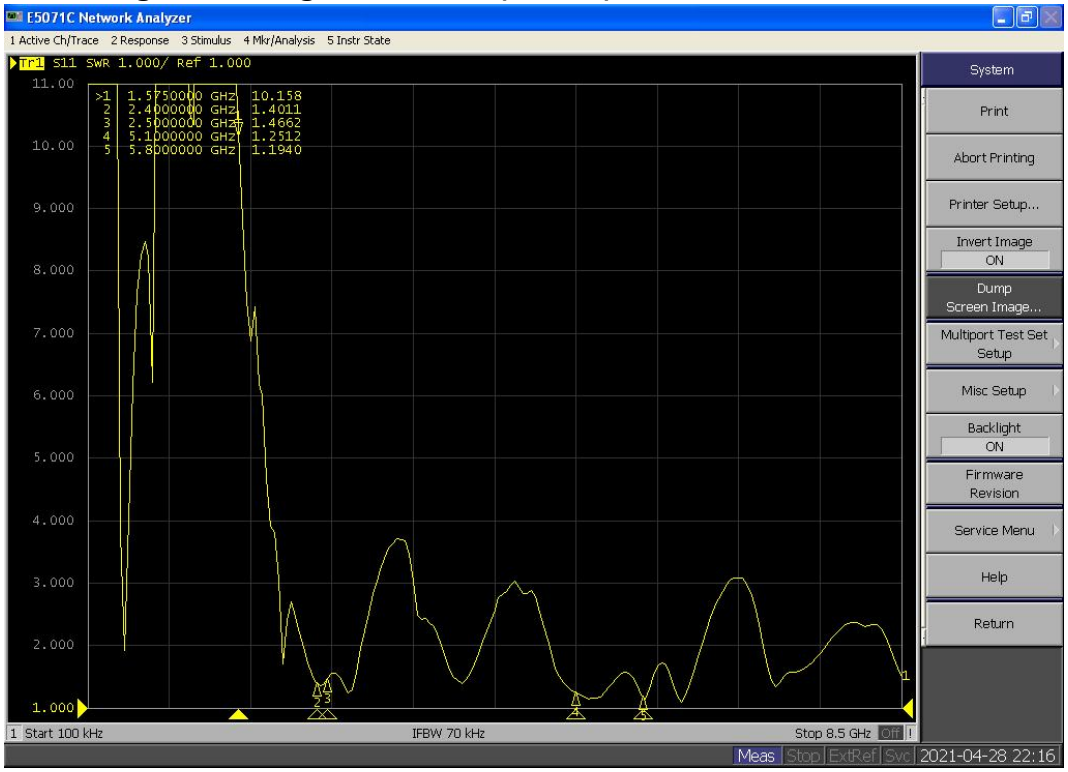


Chart 2 VSWR

5.2 Efficient and gain.

Passive Test For 2.4G	Freq(MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
	Effi(%)	42.92	48.42	45.89	49.73	45.98	49.52	47.16	50.01	43.90	43.55	41.54
	Gain(dBi)	1.92	2.00	2.05	2.16	2.13	2.27	2.03	2.15	2.25	2.14	1.88

Passive Test For WIFI 5G	Freq(MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
	Effi(%)	48.42	50.29	48.07	51.66	49.57	51.78	54.15	49.84	51.72	47.79	52.94	48.70	50.31	54.19	49.09
	Gain(dBi)	2.11	2.25	2.19	2.24	2.22	2.15	2.24	2.18	2.12	2.28	2.23	2.15	2.24	2.21	2.15

5.3 TRP and TIS.

Model	with AP6212		
Mode	WIFI 802.11b,11Mbps	WIFI 802.11g,54Mbps	WIFI 802.11n,MSC7
Frequency	TRP (dBm)	TRP (dBm)	TRP (dBm)
1 (2412MHz)	14.01	13.18	12.38
6 (2437MHz)	14.74	13.24	11.86
11 (2462MHz)	14.96	14.27	13.08
Frequency	TIS (dBm)	TIS (dBm)	TIS (dBm)
1 (2412MHz)	-80.17	-72.52	-69.20
6 (2437MHz)	-80.57	-70.02	-68.57
11 (2462MHz)	-82.39	-69.09	-69.42

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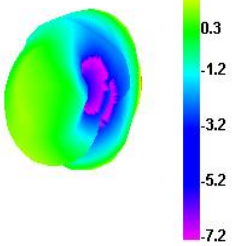
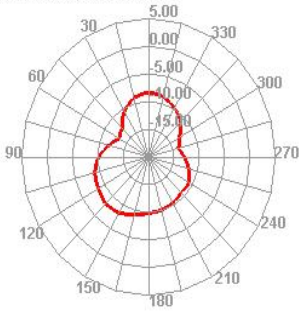
Model	CDTECH 8723		
Mode	WIFI 802.11b,11Mbps	WIFI 802.11g,54Mbps	WIFI 802.11n,MSC7
Frequency	TRP (dBm)	TRP (dBm)	TRP (dBm)
1 (2412MHz)	14.02	13.51	11.96
6 (2437MHz)	14.58	13.24	12.24
11 (2462MHz)	14.79	13.15	13.56
Frequency	TIS (dBm)	TIS (dBm)	TIS (dBm)
1 (2412MHz)	-81.81	-71.77	-64.02
6 (2437MHz)	-80.87	-70.48	-64.41
11 (2462MHz)	-82.84	-70.51	-63.92

5.4 Radiation pattern.

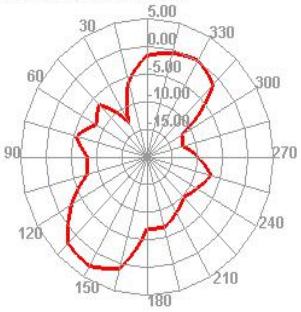
2400.000MHz



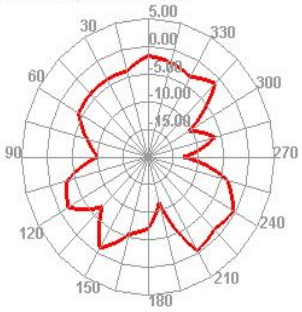
2400.000MHz H



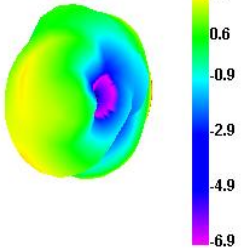
2400.000MHz E1



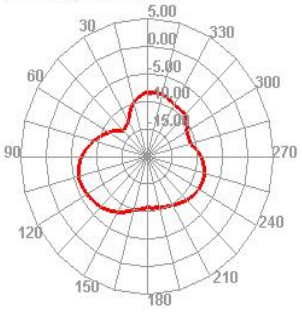
2400.000MHz E2



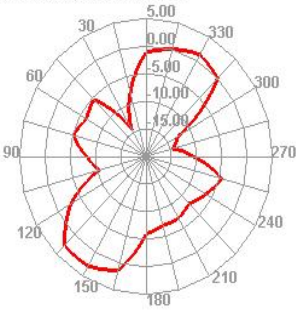
2450.000MHz



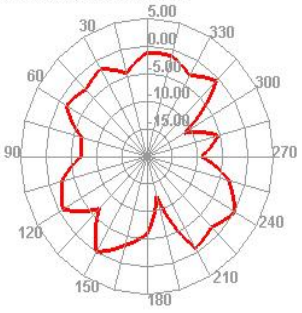
2450.000MHz H



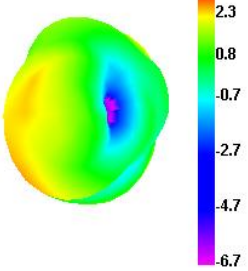
2450.000MHz E1



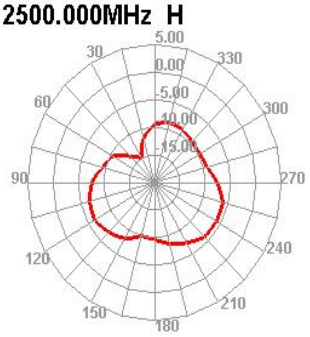
2450.000MHz E2



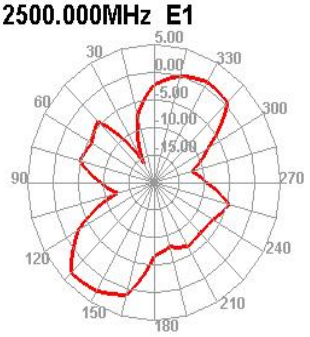
2500.000MHz



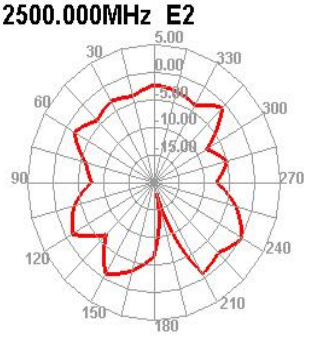
2500.000MHz H



2500.000MHz E1



2500.000MHz E2



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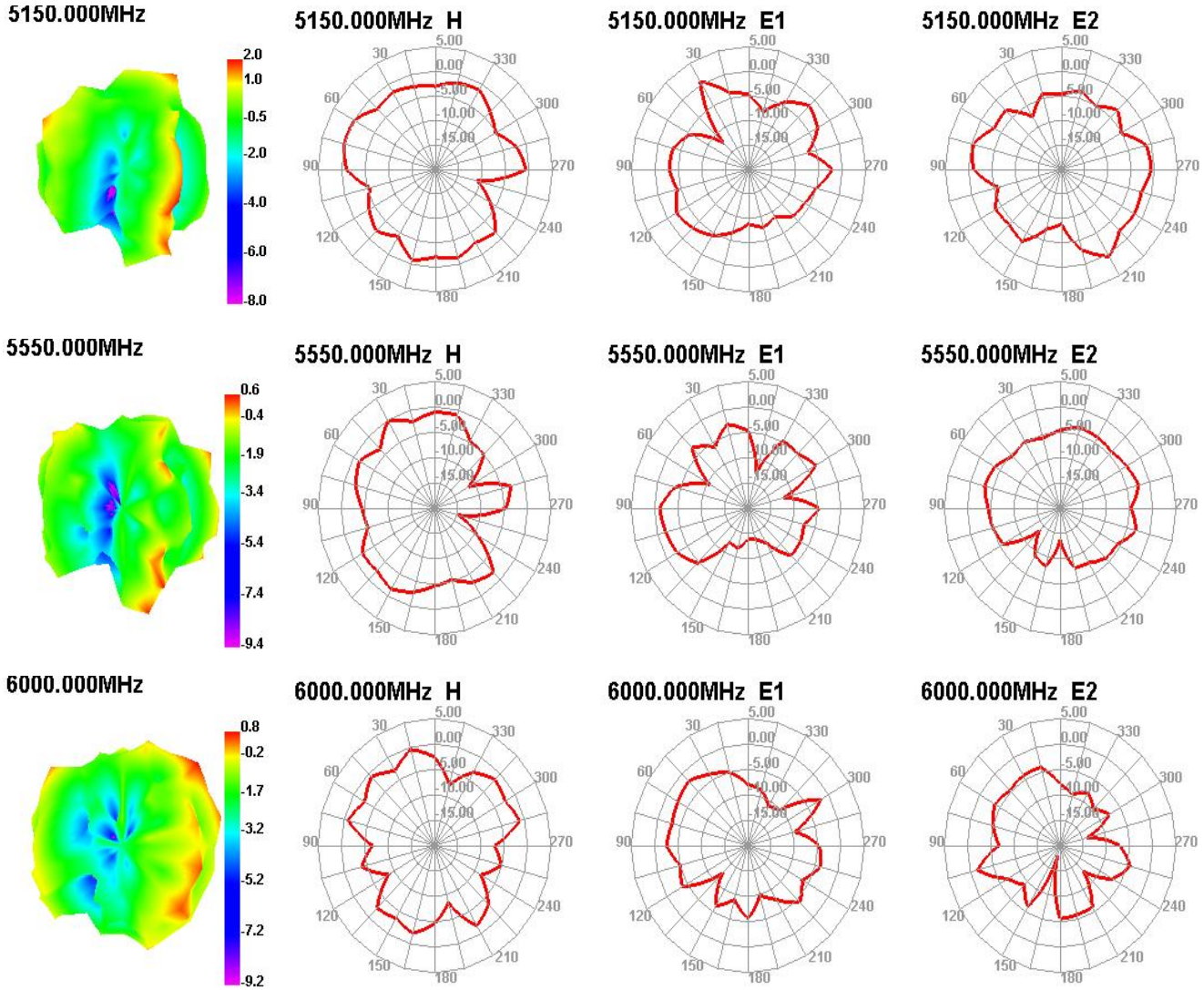

6.Reliability Test

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 for44 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 tempto 25℃,test antenna after 2 hours.	Temp.&Humi. Tester	No material deformation is allowed. Electronic Performance is ok .	PASS

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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 Testtime:24hours	Salt-Spray Tester	No color change No appear rusting	PASS

7. Product Drawing

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