
HM-63102 REV1.0
Antenna Specification V1.0

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Table of Content

1. Antenna Characteristic Specification	2
1.1 Antenna Structure	2
1.2 Antenna Technical Parameters and Interface	2
2. Antenna Test Conditions	3
2.1 Test Equipment	3
2.2 Test Result	3
Return Loss (S11).....	3
Antenna Efficiency.....	4
Antenna 2D Radiation Pattern	4
Revision History	6

1. Antenna Characteristic Specification

This specification describes the physical characteristics and electrical performance of the following 2.4G&5G Wi-Fi antennas.



Figure 1. Antenna Actual Effect Picture

1.1 Antenna Structure

The antenna is mainly composed of SMT on the PCB.

1.2 Antenna Technical Parameters and Interface

Design Specifications	Typical	Units
Form	PCB SMT(ANT PCB03)	\
Frequency	2400-2500&5180-5850	MHz
Gain	2.4G: 1.21	dBi
	5.1G: 2.59	dBi
	5.8G: 2.86	dBi
Antenna Efficiency	@2.45GHz: 24.13 @5.15GHz: 22.01 @5.85GHz: 25.21	%
VSWR	< 10	\
Polarization	Linear Polarization	\
Axial Ratio	\	\
Radiation pattern	Omnibearing	\
impedance	50	ohm
Power handling	33	dBm
Interface	\	\
Overall dimensions	18.1mm*4.4mm*3.6mm	\
Weight	\	\
Operation Temp.	-30-70	°C
Storing Temp.	-30-70	°C

2. Antenna Test Conditions

2.1 Test Equipment

Antenna Vector Network Analyzer ROHDE&SCHWARZ ZNB 20

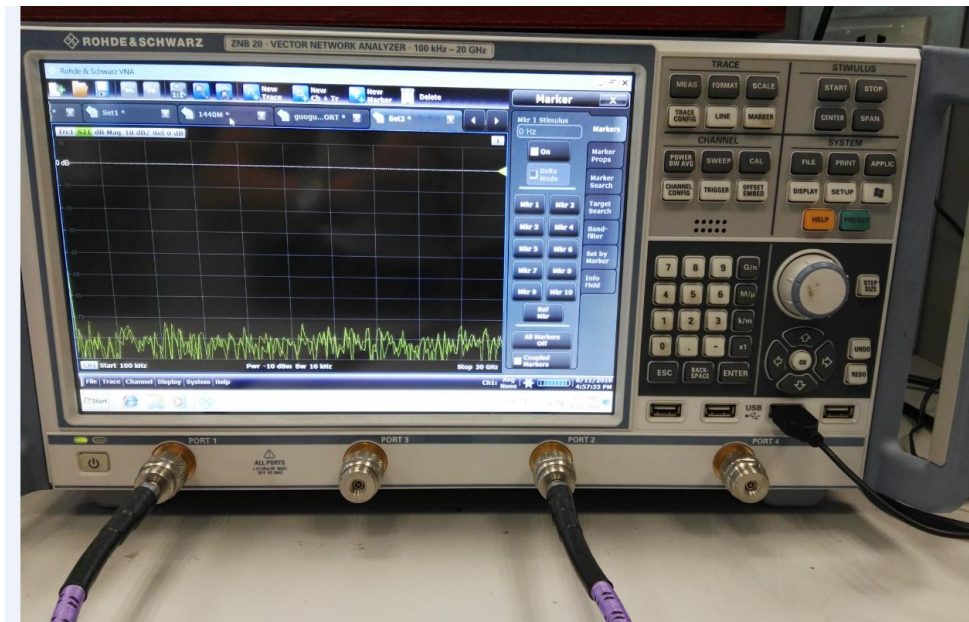


Figure 2.Vector Network Analyzer

2.2 Test Result

Return Loss (S11)



Figure 3.Return Loss

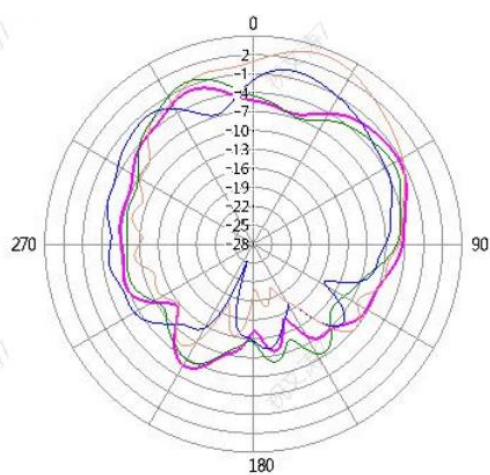
The yellow curve in the figure above shows that the antenna syntony is realized well, and the resistance condition matches well.

Antenna Efficiency

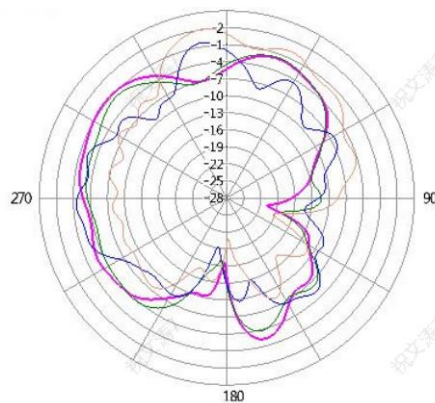
Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	1.12	32.7	5150	2.59	22.01
2410	1.14	32.23	5200	1.96	22.79
2420	1.21	30.73	5250	1.41	22.75
2430	0.65	30.07	5300	1.52	23.39
2440	0.23	27.5	5350	1.09	22.58
2450	-0.3	24.13	5400	1.27	19.71
2460	-0.75	21.73	5450	1.64	23.71
2470	-1.31	19.12	5500	1.28	22.29
2480	-2.15	16.45	5550	1.83	25.34
2490	-2.78	14.66	5600	1.65	23.39
2500	-3.02	13.71	5650	1.22	20.7
			5700	1.66	22.19
			5750	2.11	21.15
			5800	2.62	23.37
			5850	2.86	25.21

Antenna 2D Radiation Pattern

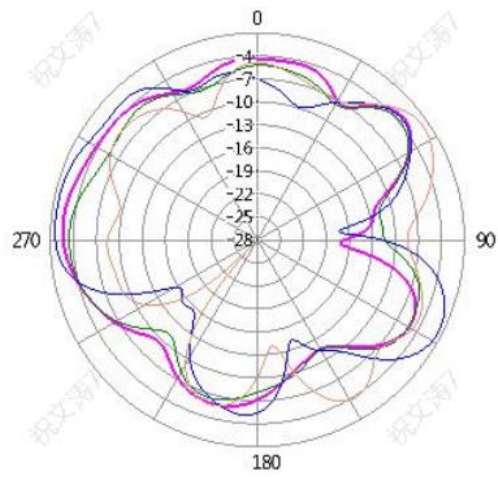
2.4G



Phi=0 deg

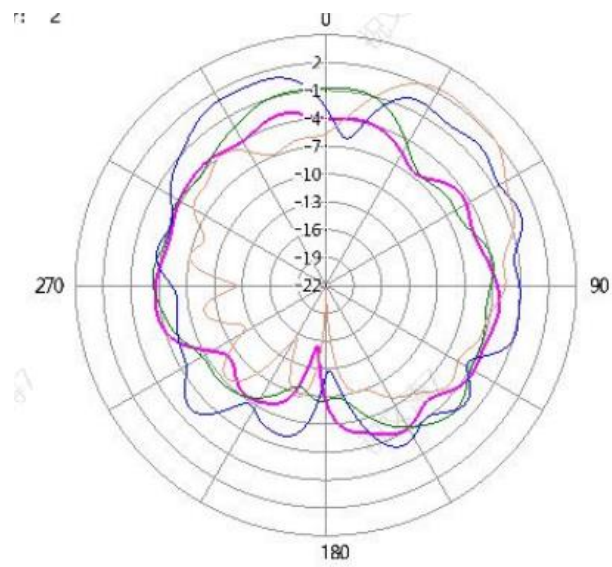


Phi=90 deg

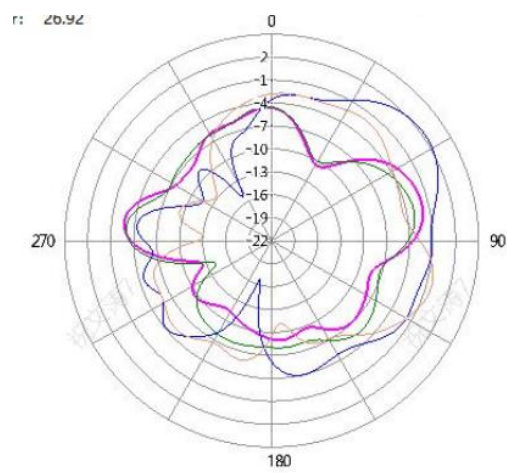


Theta=90 deg

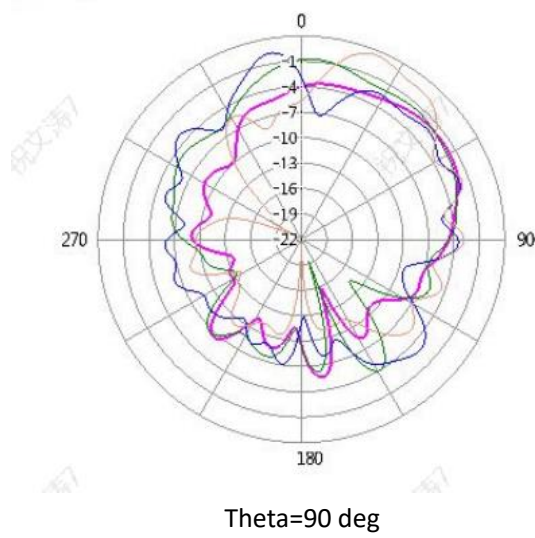
5G



Phi=0 deg



Phi=90 deg



Revision History

Revision	Content	Date	Author
V1.0	First Edition	Aug. 06, 2024	Zhu W