
HM-63059

Onboard 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	9

1. Antenna Characteristic Specification

This specification describes the physical characteristics and electrical performance of the following 2.4 GHz Wi-Fi/BT antennas.

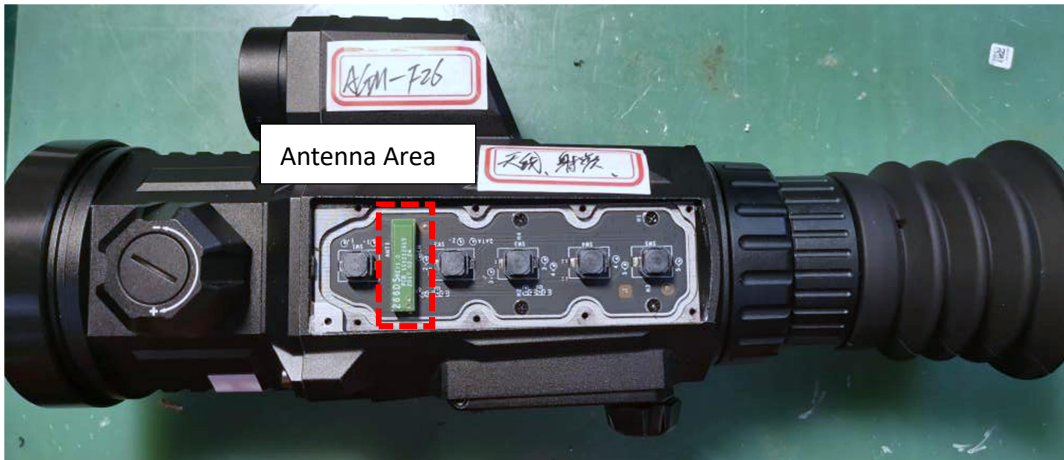


Figure 1. Antenna Actual Effect Picture

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	MHz
Gain	High channel: -3.36	dBi
	Medium channel: -3.17	dBi
	Low channel: -5.59	dBi
Antenna Efficiency	16.68	%
VSWR	< 2	\
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

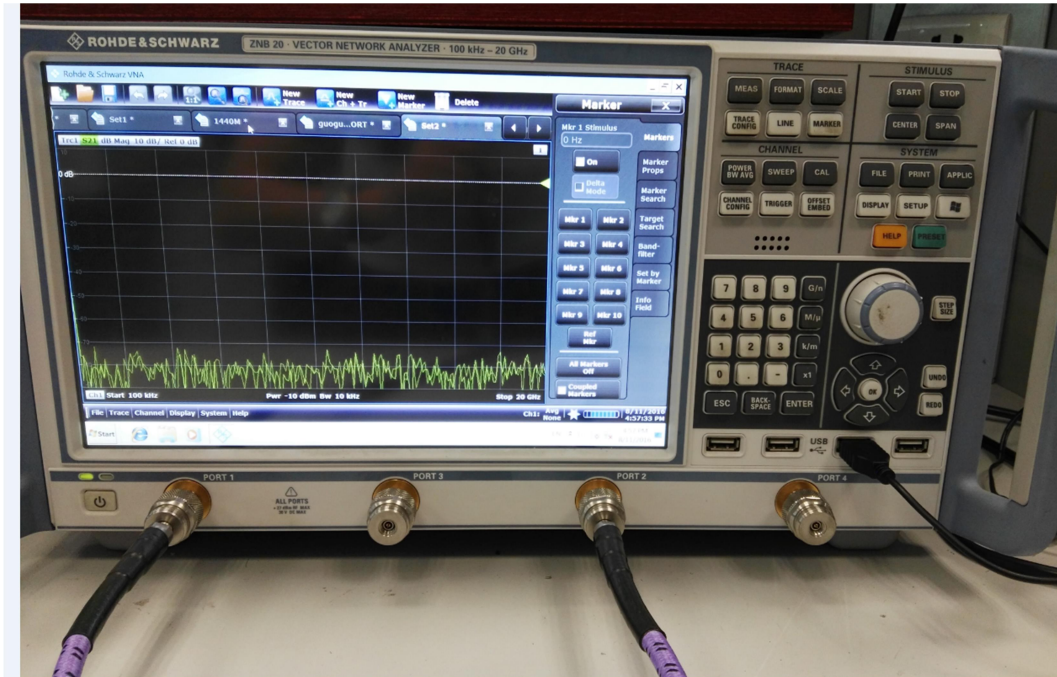


Figure 2. Vector Network Analyzer

2.2 Test Result

Return Loss (S11)

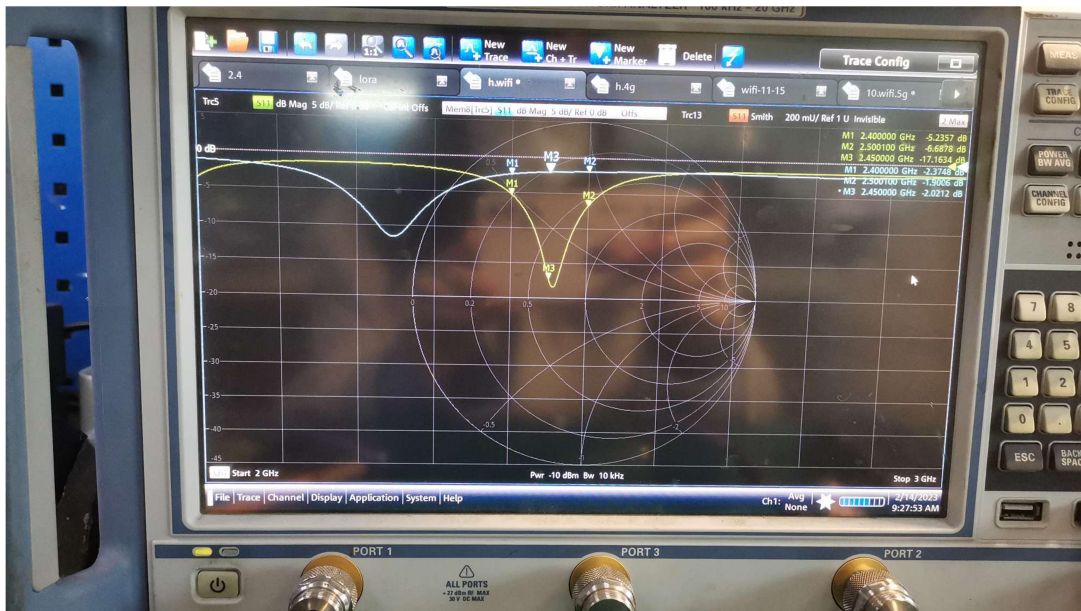


Figure 4. Return Loss

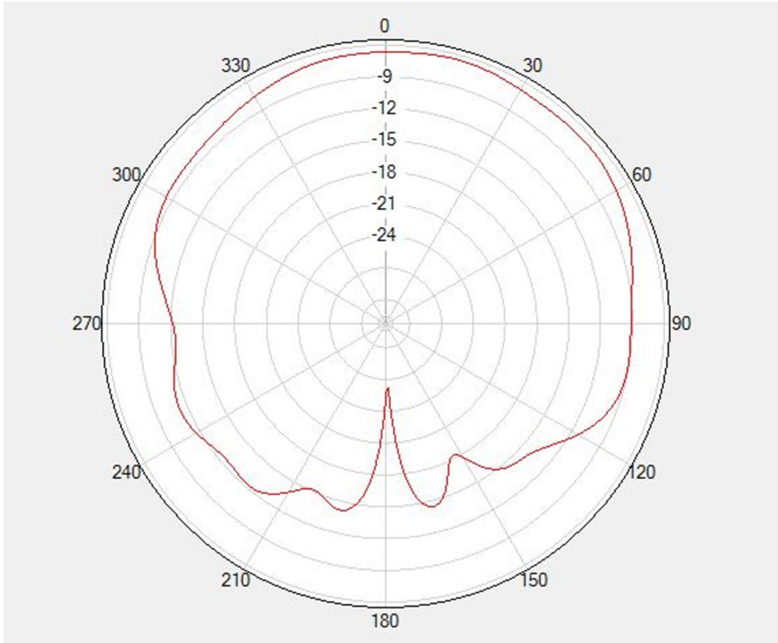
The blue curve in the figure above shows that the antenna syntony is realized well, and the resistance condition matches well.

Antenna Efficiency

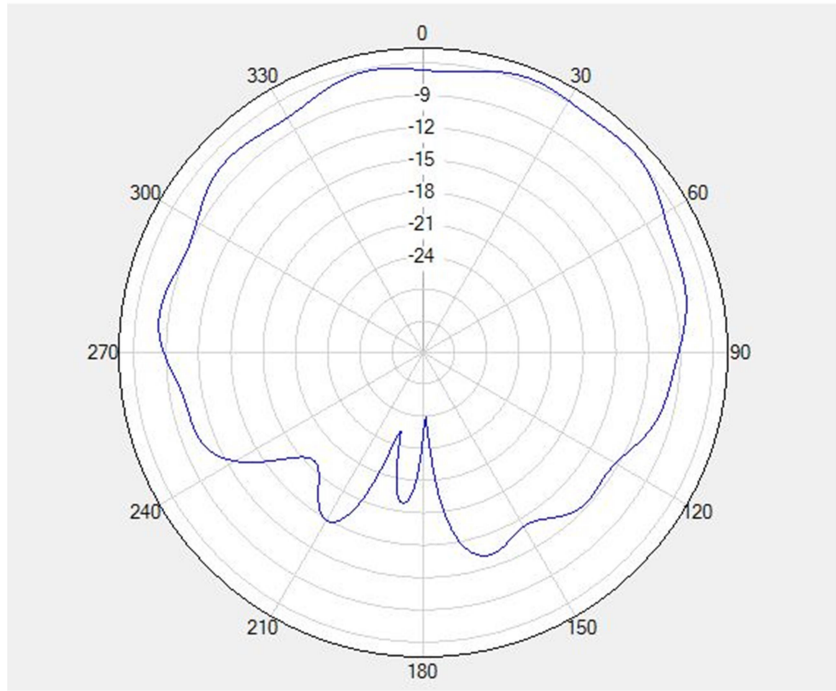
Frequency /MHz	Efficiency /%
2400	11.24
2410	13.26
2420	15.43
2430	17.39
2440	18.95
2450	19.36
2460	19.30
2470	18.67
2480	17.74
2490	16.42
2500	15.67

Antenna 2D Radiation Pattern

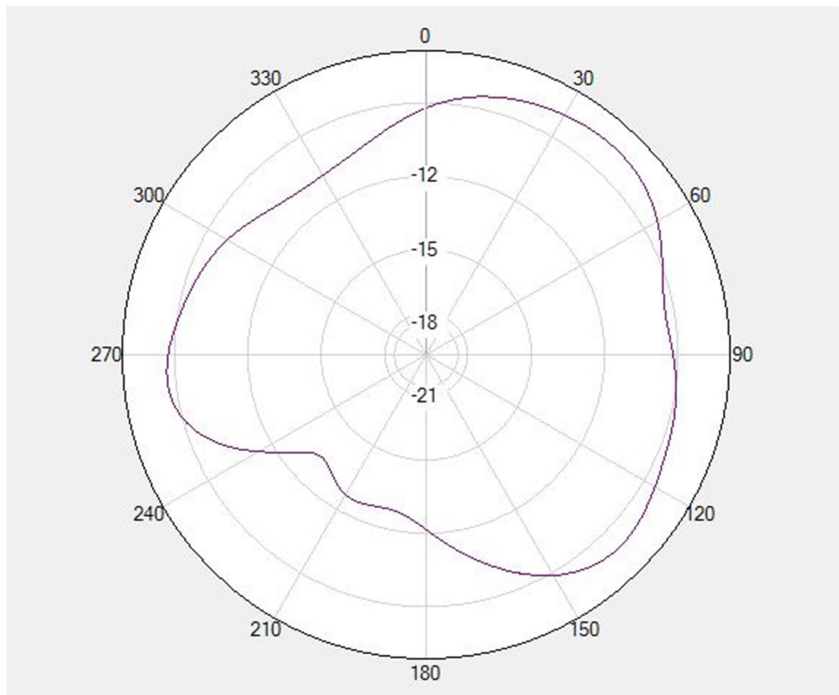
2400MHz:



Phi=0 deg

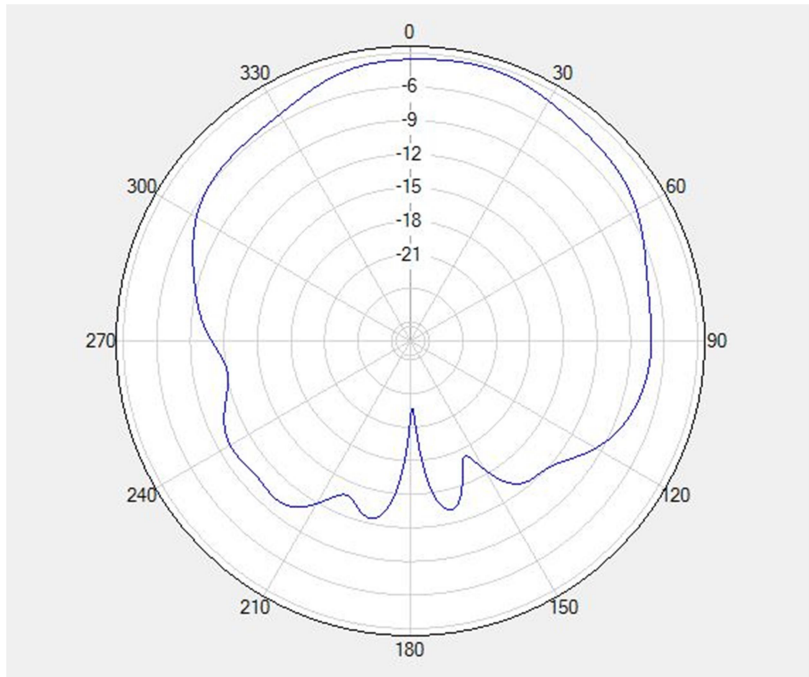


Phi=90 deg

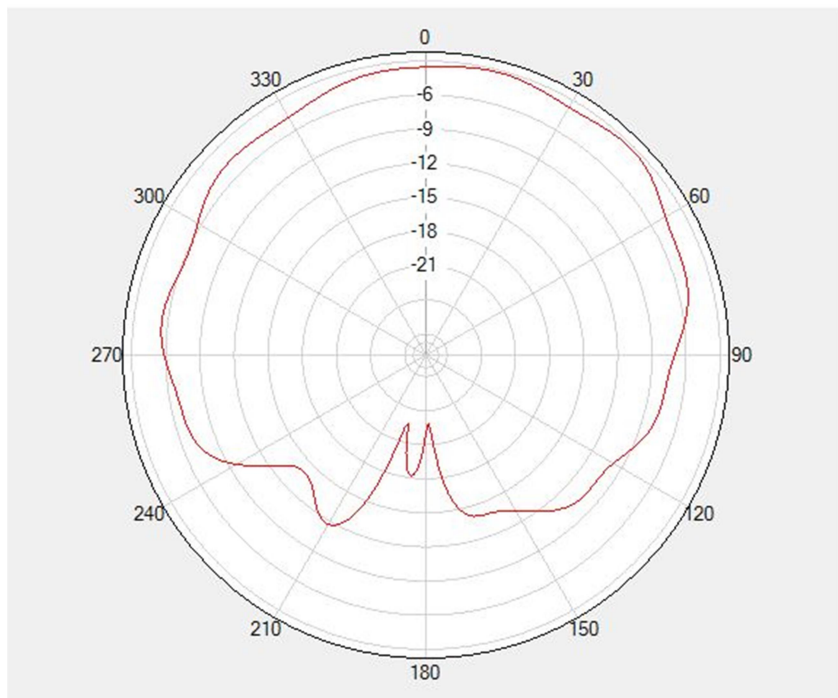


Theta=90 deg

2450MHz:



Phi=0 deg

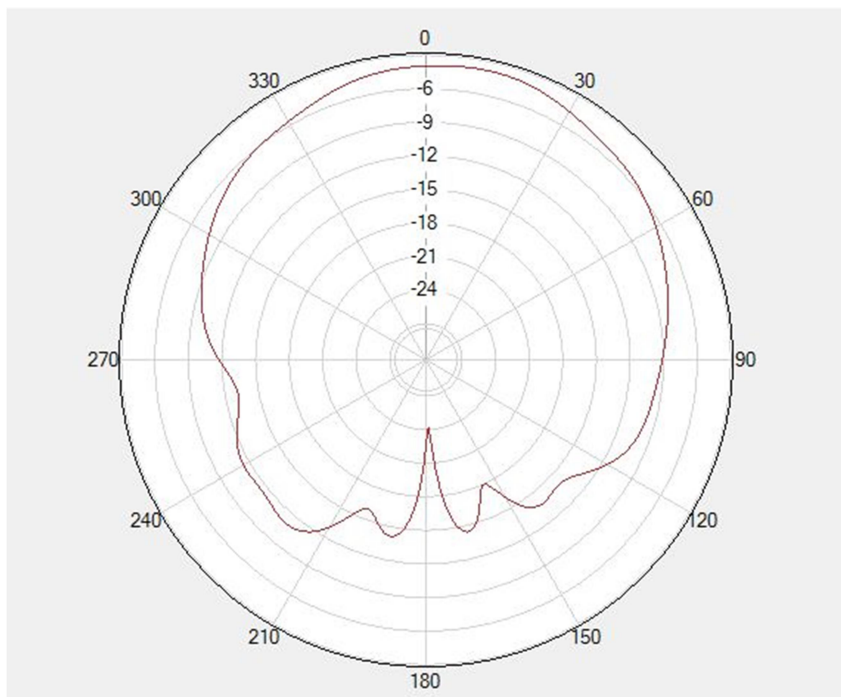


Phi=90 deg

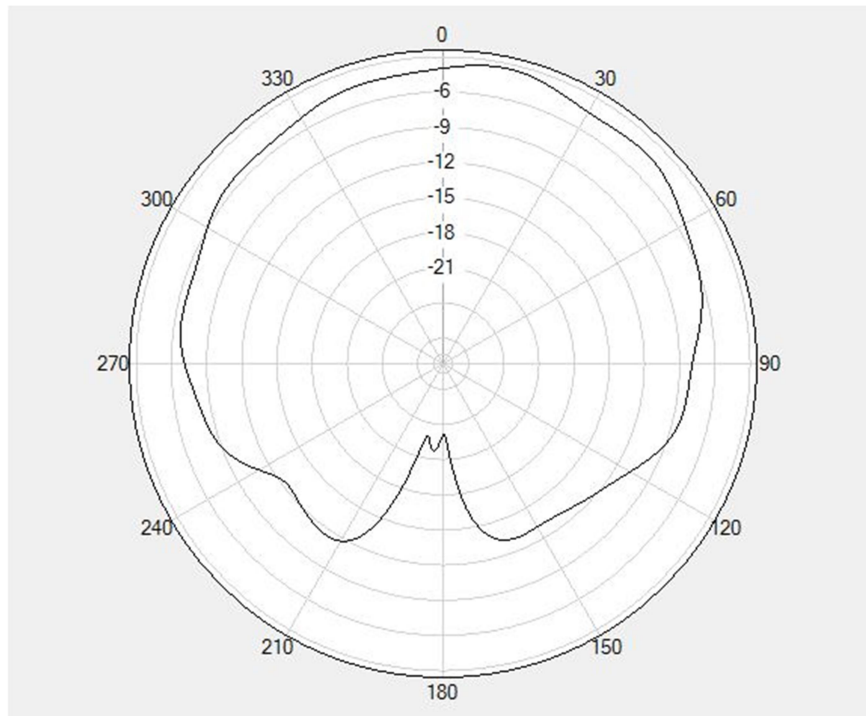


Theta=90 deg

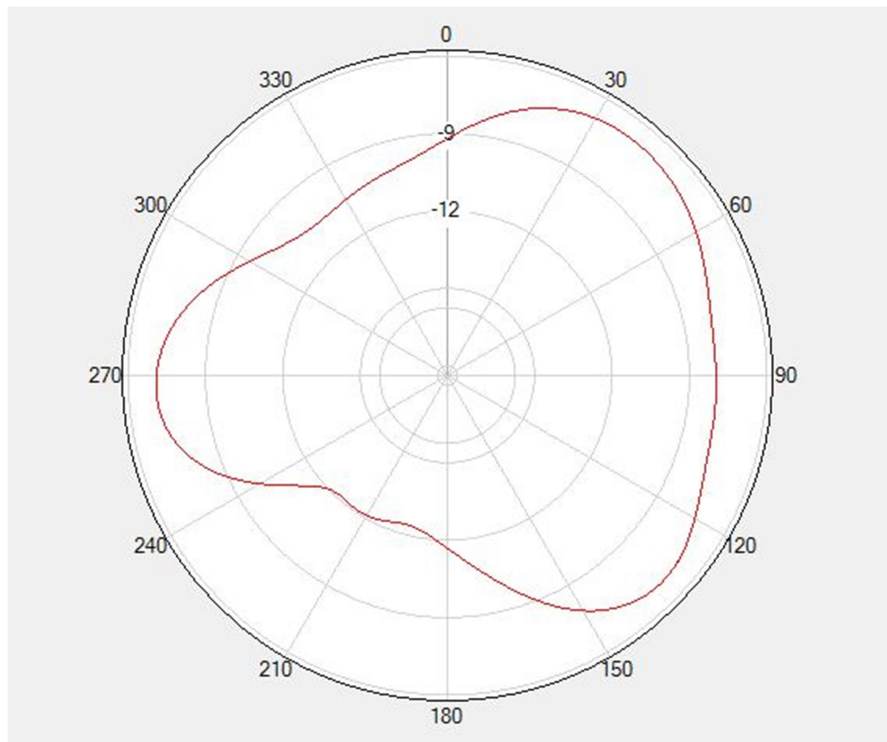
2500MHz:



Phi=0 deg



Phi=90 deg



Theta=90 deg

Revision History

Revision	Content	Date	Author
V1.0	First Edition	May 24, 2023	Hua Lina