

DS-K1109
Onboard Antenna Specification V1.0

1. Antenna Characteristic Specification

This specification describes the physical characteristics and electrical performance of the following 2.4 GHz Bluetooth antennas.

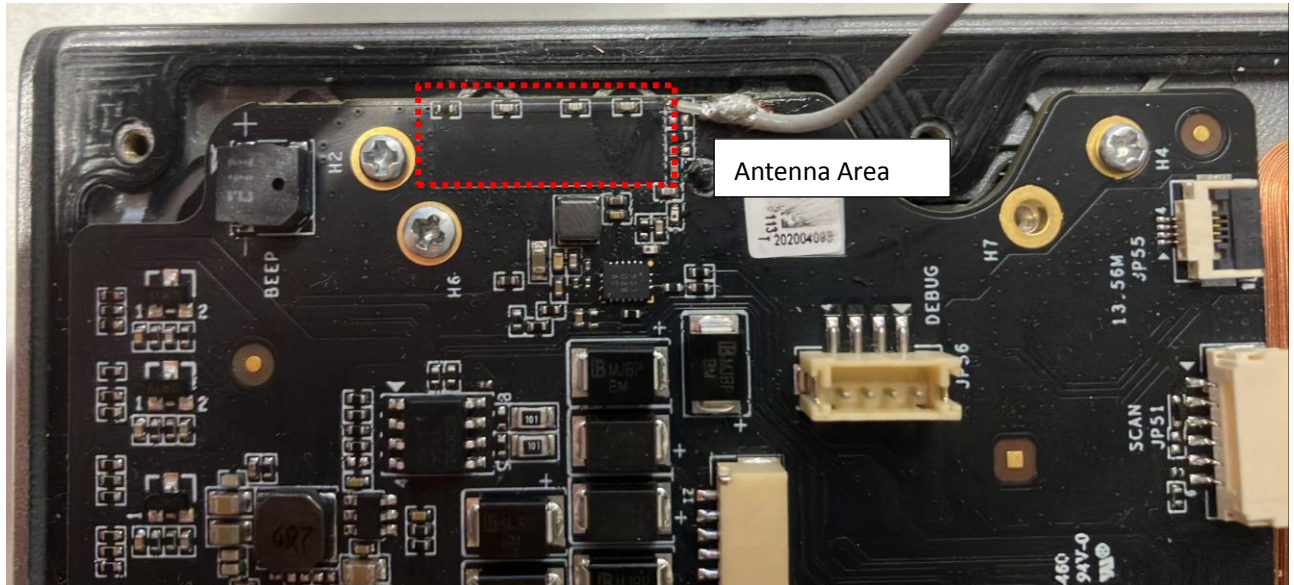


Figure 1. Antenna Actual Effect Picture

1.1 Antenna Structure

The antenna is mainly composed of on-board wiring on the PCB.

1.2 Antenna Technical Parameters and Interface

Design Specifications	Typical	Units
Form	On-board PCB	\
Frequency	2400-2500	MHz
Gain	High channel: 1.13	dBi
	Medium channel: 1.38	dBi
	Low channel: 1.23	dBi
Antenna Efficiency	59.15	%
VSWR	< 10	\
Polarization	Linear Polarization	\
Axial Ratio	\	\
Radiation pattern	Omnibearing	\
impedance	50	ohm
Power handling	33	dBm
Interface	\	\

Overall dimensions	5mm*2mm	\
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

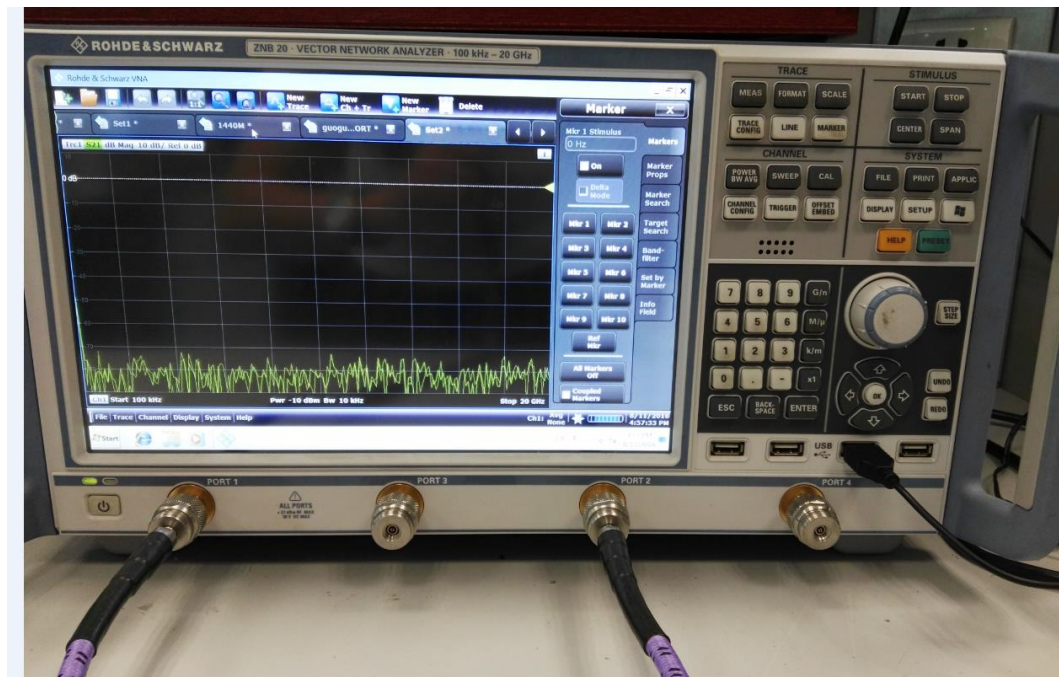


Figure 2.Vector Network Analyzer

2.2 Test Result

Return Loss (S11)

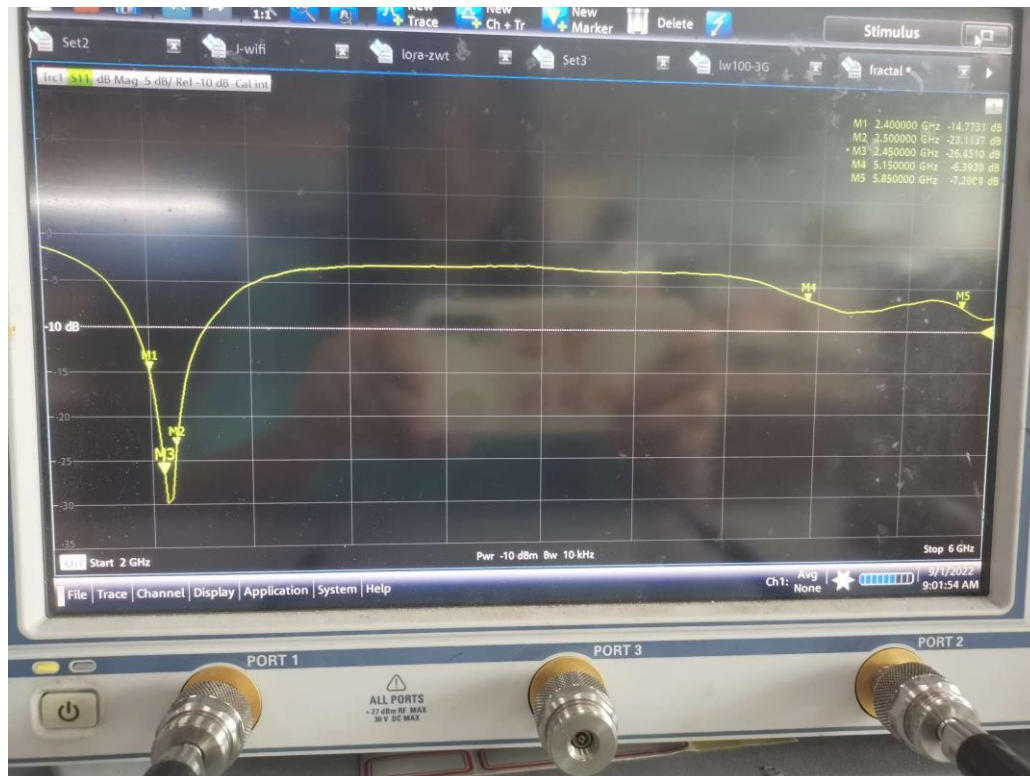


Figure 4.Return Loss

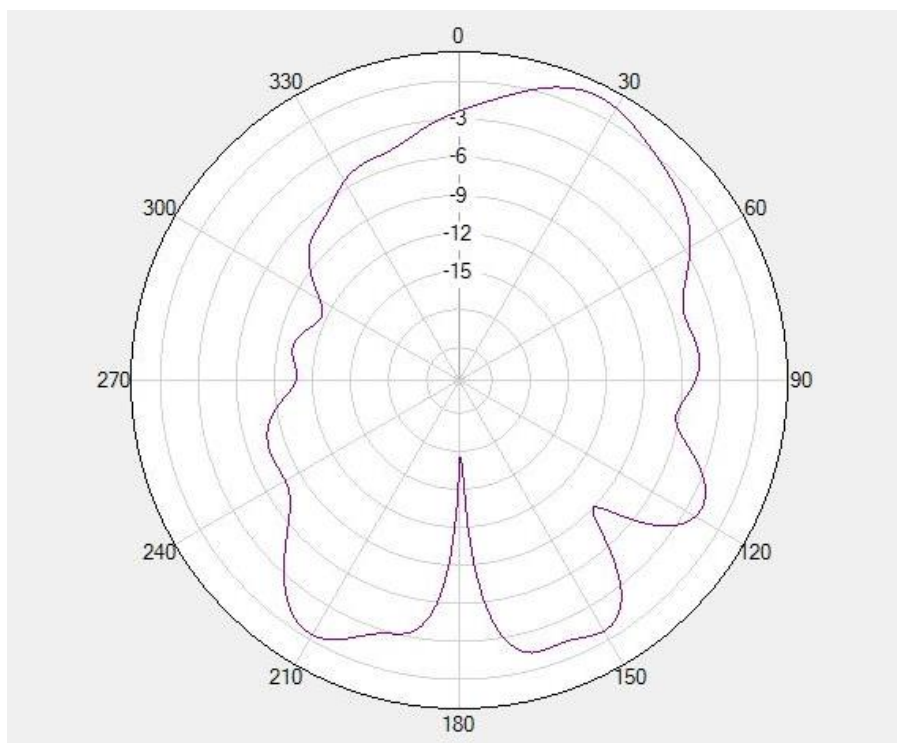
The yellow curve in the figure above shows that the antenna syntony is realized well, and the resistance condition matches well.

Antenna Efficiency

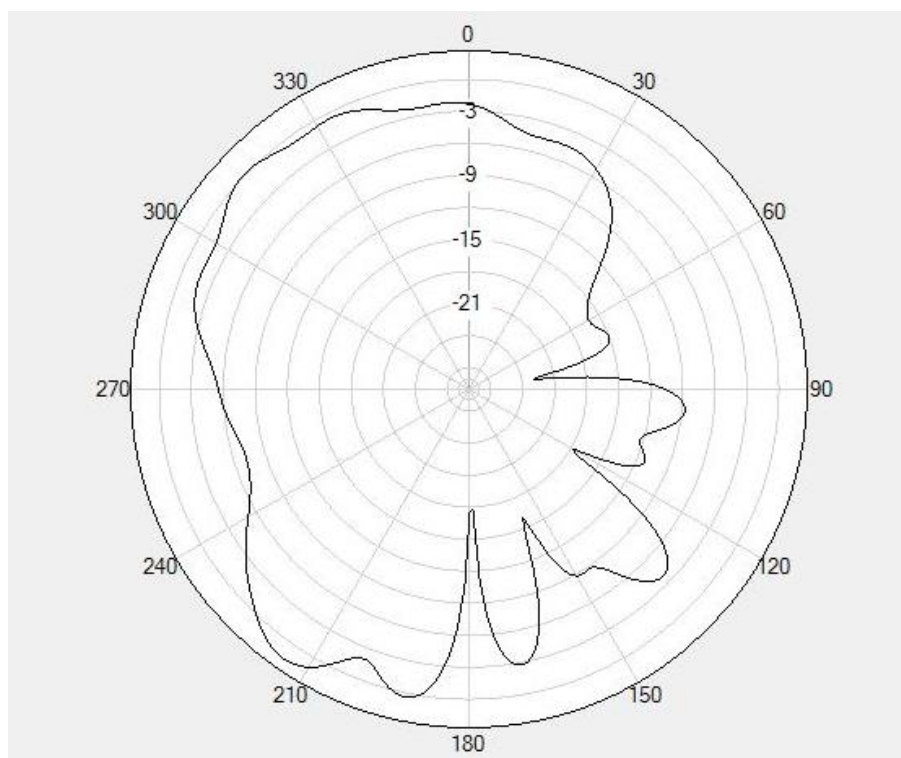
Frequency /MHz	Efficiency /%
2400	54.94
2410	55.88
2420	56.82
2430	56.86
2440	58.07
2450	59.87
2460	61.17
2470	61.74
2480	62.33
2490	61.74
2500	61.20

Antenna 2D Radiation Pattern

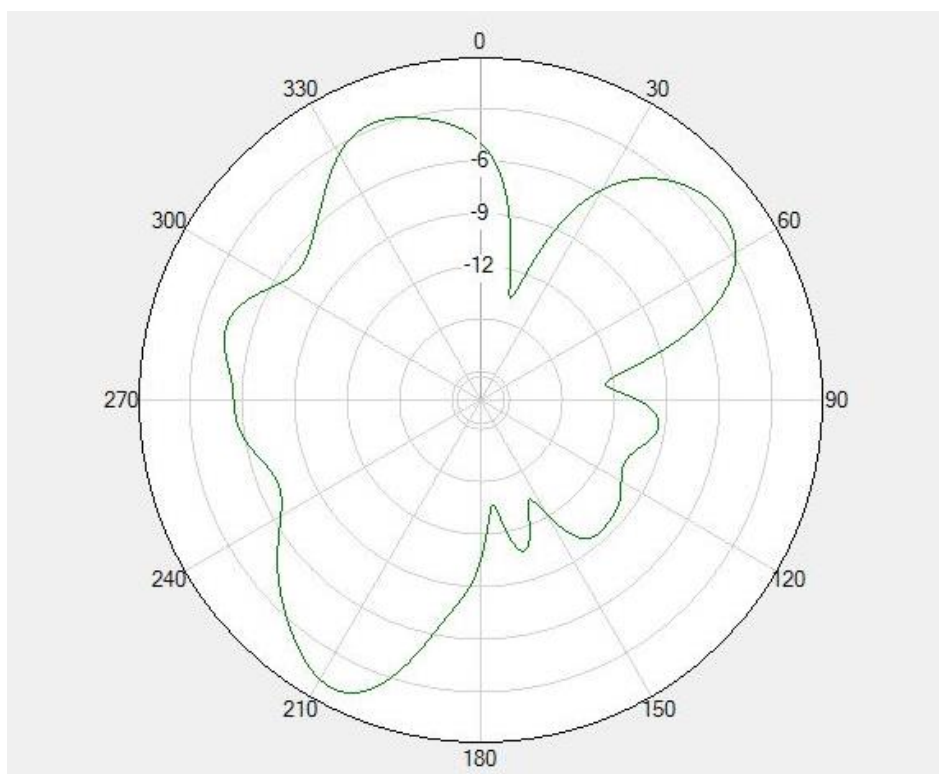
2400MHz:



Phi=0 deg

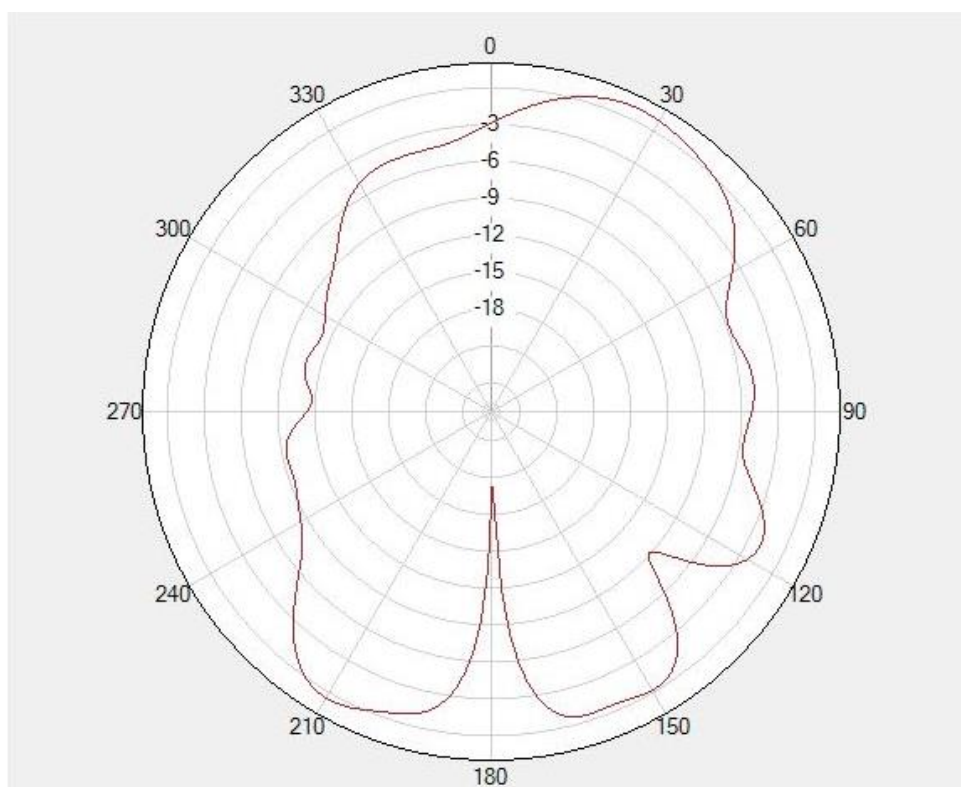


Phi=90 deg

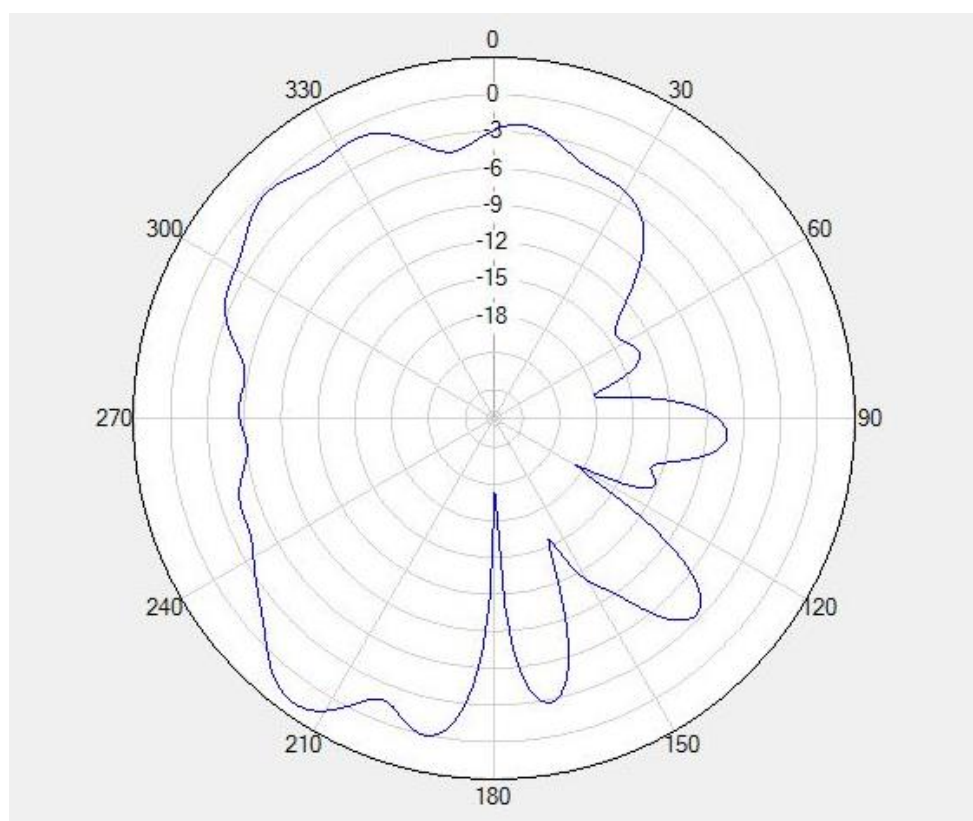


Theta=90 deg

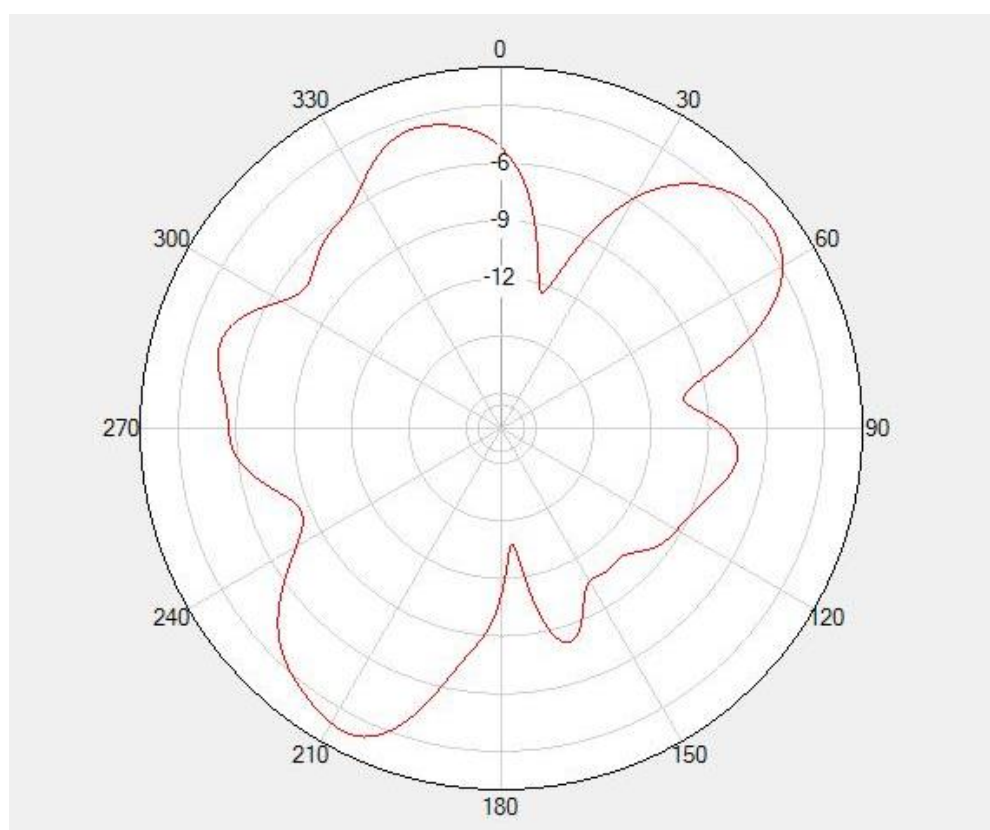
2450MHz:



Phi=0 deg

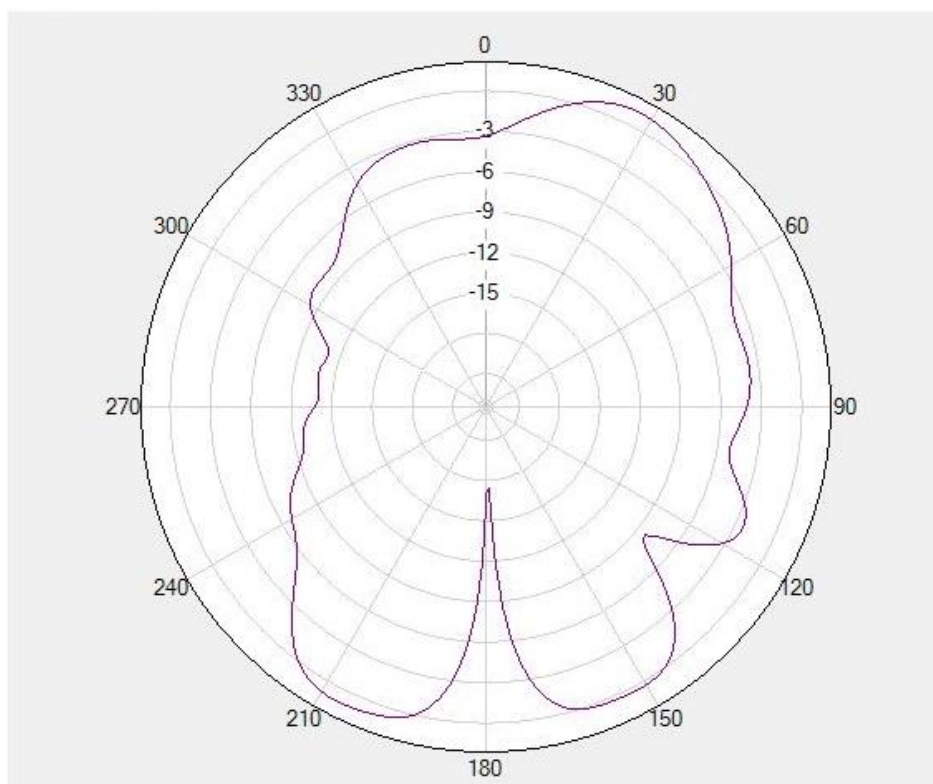


Phi=90 deg

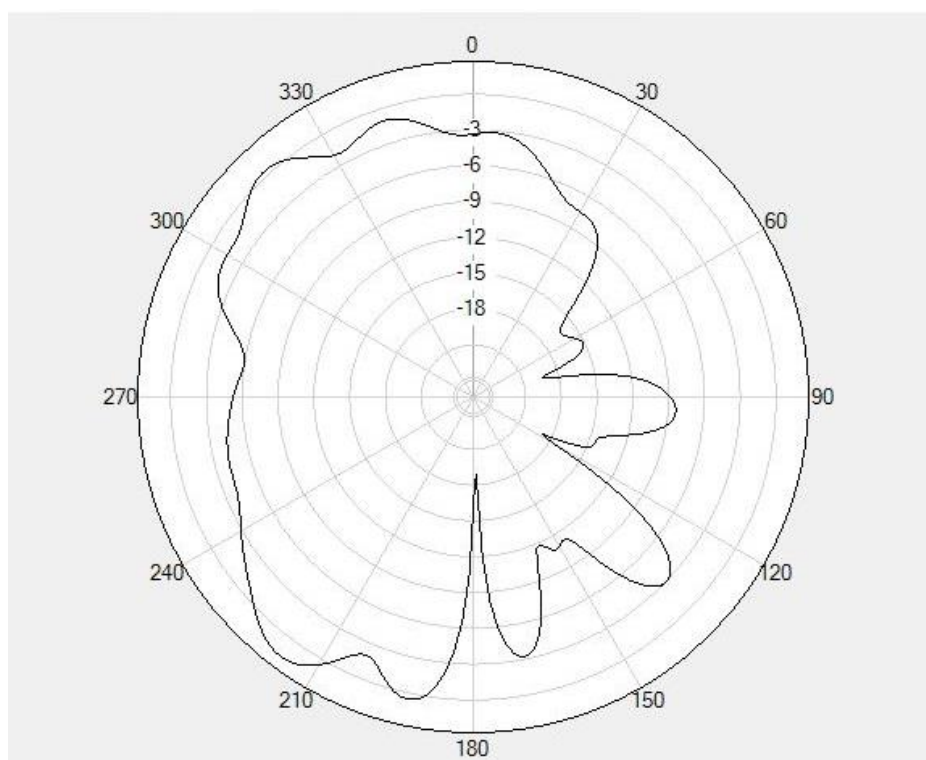


Theta=90 deg

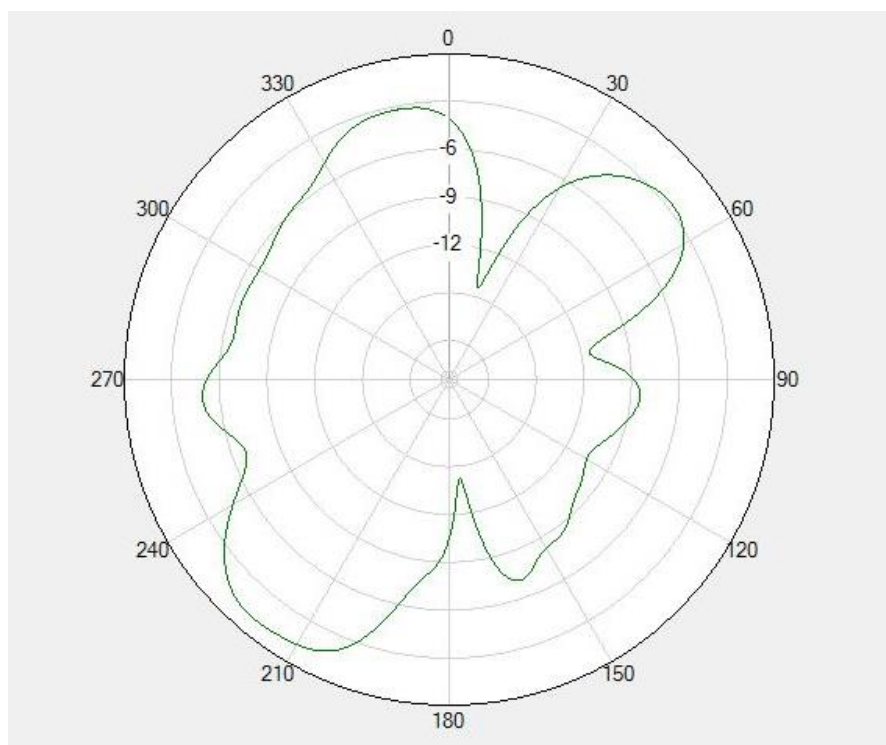
2500MHz:



$\Phi=0^\circ$



$\Phi=90^\circ$



Theta=90 deg