

1. Introduction

The antenna is an antenna used on the T2 riding platform. The antenna is designed to be used on 2.4GHz.

This document is used to describe the detailed parameters of the antenna, such as the antenna's performance and usage standard restrictions.

The reference design size of the antenna requires a space of 48mm*14mm to place the antenna to ensure that the antenna guarantees a 50ohm impedance design.

1. Antenna design

The antenna design is completely designed according to 50ohm impedance at 2.45Ghz. Therefore, there is no need to add more components for antenna matching.

2. Simulation design

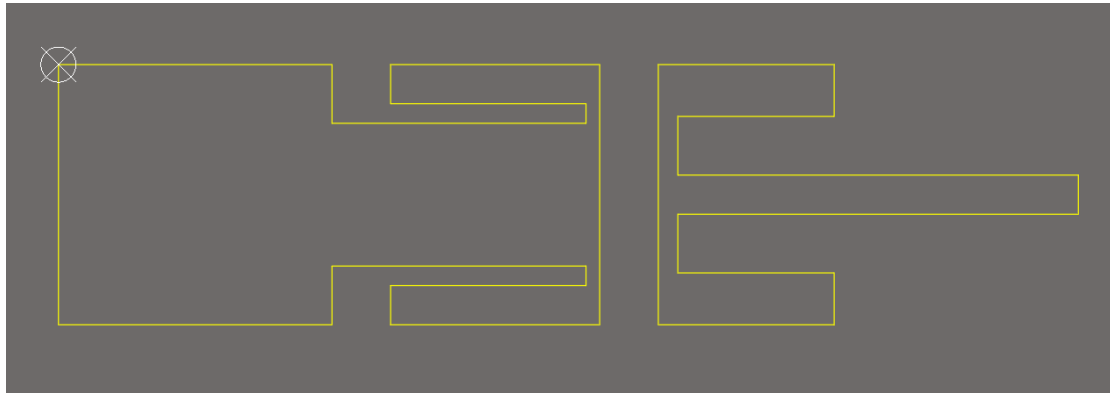
2. Simulation design

We use antenna simulation software and design software for antenna simulation design and testing. The specific performance of the antenna is shown in the following network diagram. The performance parameters of the vertical line feedback antenna in the coordinate, and the working frequency of the horizontal line feedback antenna in the coordinate.

3. Layout and Implementation

A small change in the antenna may cause a large change in the performance of the

antenna. Therefore, it is strongly recommended to design the antenna according to the reference design drawings.



4. Test requirements

In order to ensure that the antenna can also ensure good performance on the PCB, we need to ensure that there is enough space for the antenna to be used on the PCB. The PCB requires the welding to function properly. This test uses an external battery for testing.

Testing Result

All the reflection measurements were performed with a network analyzer connected to a semi-rigid coax cable, which was soldered to the feed point of the antenna. Because of the small size antenna and the small ground plane this kind of measurements is heavily affected by the presence and placement of the coax cable. This influence can result in a small uncertainty in resonance frequency and measured reflection. Typically different placement of the semi-rigid coax cable could change the resonance frequency with 5 -10 MHz and the reflection with 3 - 4 dB.

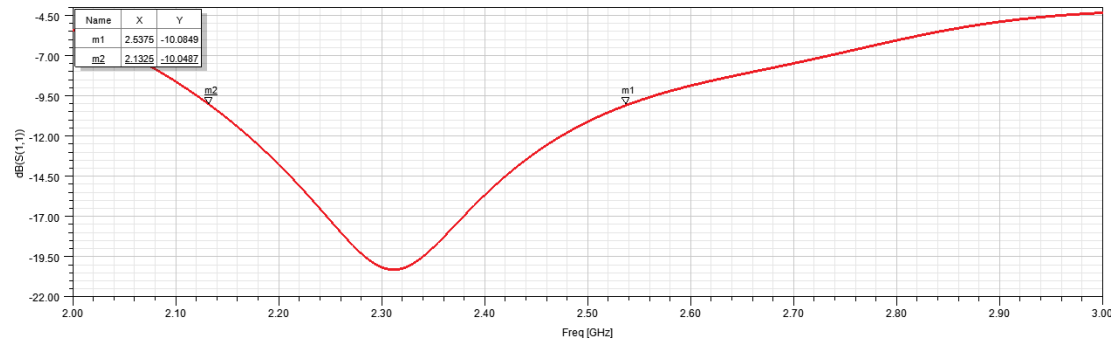


Figure 2 S11 (the antenna's own port impedance $23.55 + 60i$ ohm, curve after matching)

Antenna plate	PCB antenna
Market name/Model name	T2
Antenna Max. Gain	3dBi
Frequency Range	2400.0-2480.0MHz
VSWR	3.2046

Gain and Efficiency

Frequency	Gain (dBi)	Efficiency()
2400MHz	0.93	29%
2450MHz	3	27%
2500MHz	-1.28	25%

Radiation Patterns

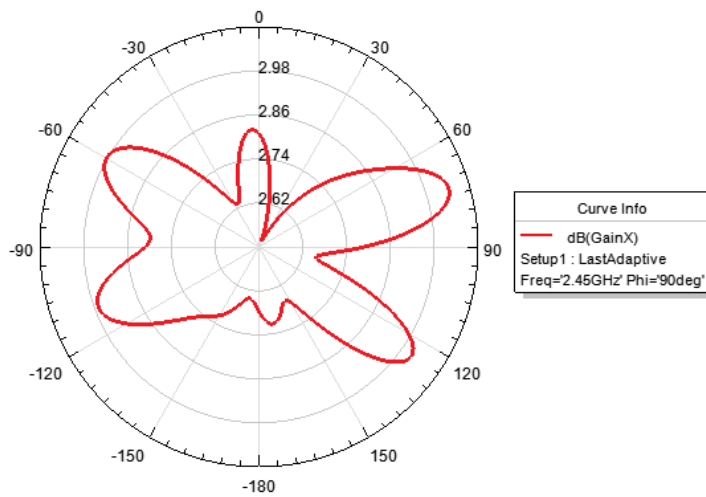


Figure 3 GAIN X Plane

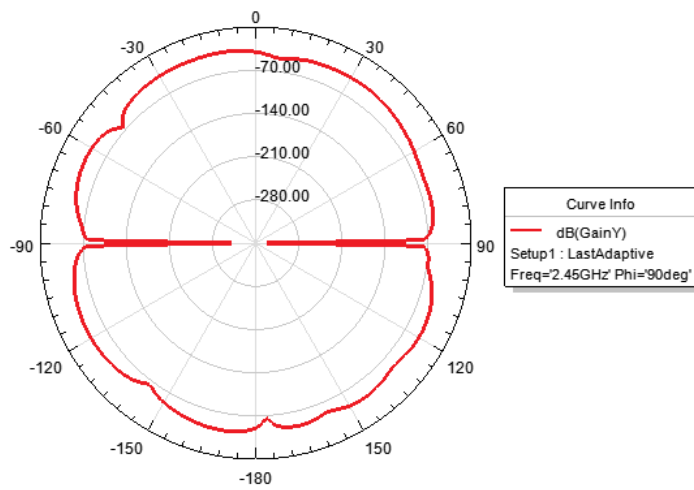


Figure 4 GAIN Y Plane

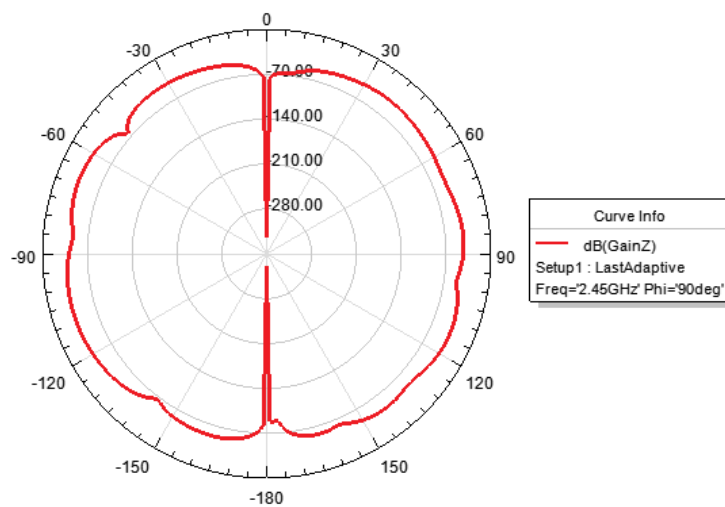


Figure 5 GAIN Z Plane