TC300 MURATA ANTENNA VERSION

DUAL BAND WIFI ANTENNA

Honeywell (Beijing) Technology Solutions Labs Co., Ltd.

A1 Building, C&W Industry Zone, No.14 Jiuxianqiao Road, Chaoyang District, 100015, Beijing, P.R. China

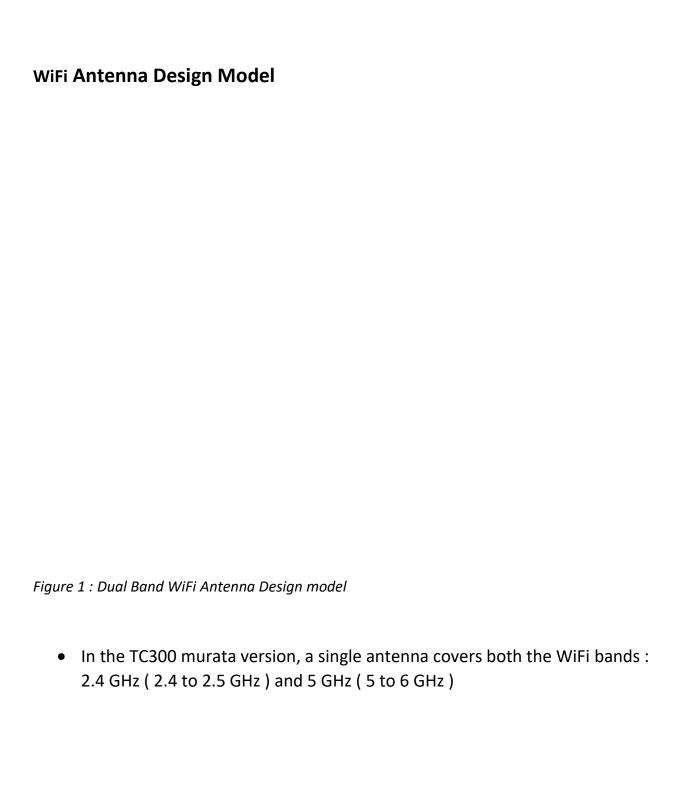
Table of Contents

- 1. WiFi Antenna Specifications
- 2. WiFi Antenna Design Model
- 3. Return Loss (RL) of WiFi Antenna
- 4. 3D Farfield Radiation Pattern
- 5. 2D Farfield Radiation Pattern
- 6. Design Summary

WiFi Antenna Specifications :

Parameters	Values
Antenna dimension	15.75 x 6.28 mm
	2.543 dBi at 2.45 GHz
Antenna Gain	3.582 dBi at 5.5 GHz
Return Loss max in band (S11)	-31.92 dB
Bandwidth	91.4 MHz, at 2.4 GHz band 1.1 GHz, at 5 GHz band
Efficiency (System total Efficiency)	-1.895 dB (64.6 %) at 2.45 GHz -1.021 dB (79 %) at 5.5 GHz
Impedance	50 ohm
	No
Antenna Diversity	

Table 1 : Performance Specifications of Dual Band WiFi Antenna



Return Loss (RL) of WiFi Antenna

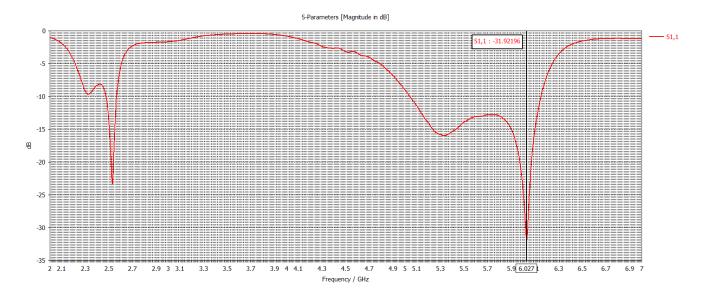
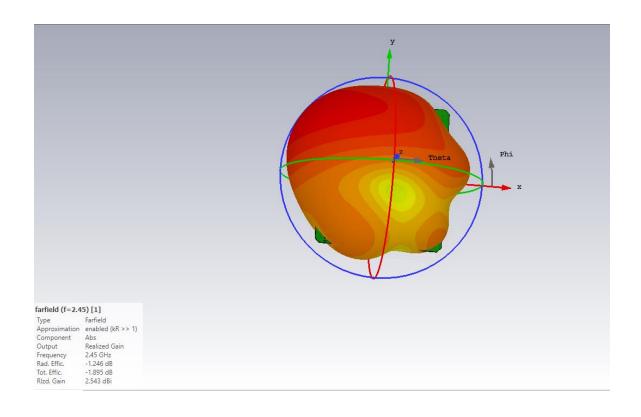


Figure 2: Return loss plot of WiFi Antenna

- The WiFi Antenna Return loss plot is shown above, which has -10 dB bandwidth of 91.4 MHz & 1.1 GHz at 2.4 GHz & 5 GHz bands respectively
- The max Return loss is -31.92 dB
- The bands under consideration are 2.4 GHz & 5 GHz, with minimum of 100 MHz & 1 GHz respectively.

3D Farfield Radiation Pattern



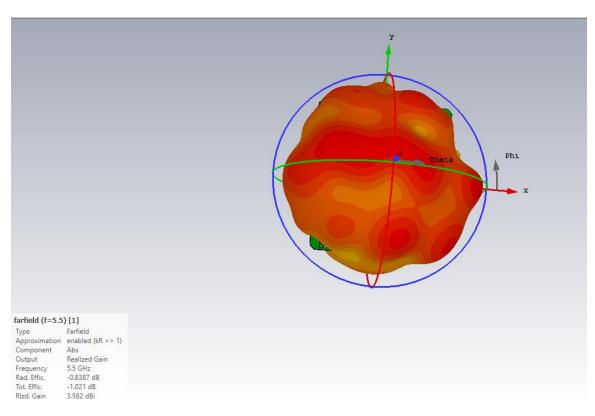


Figure 3: 3D Radiation Pattern Plots of WiFi Antenna at the center frequencies of 2 bands

- In the 3D Radiation Pattern shown in Figure 3, the Realized Gain is 2.543 dBi & 3.582 dBi at 2.4 GHz & 5 GHz resepectively with a Quasi Omni directional pattern coverage
- The average Antenna efficiency is over 71 %

2D Farfield Radiation Pattern

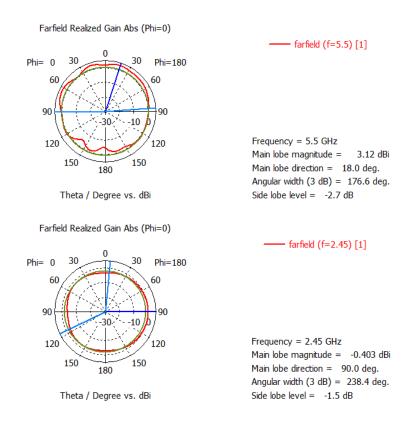


Figure 4: 2D Radiation Pattern Plot of WiFi Antenna (Phi = 0 degree)

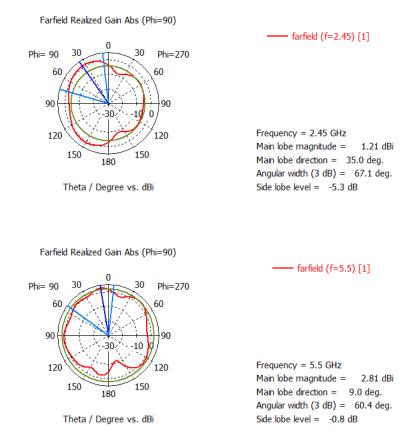
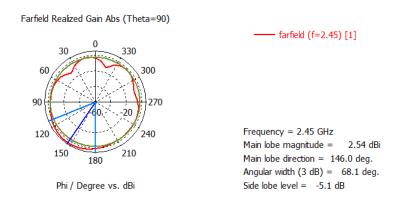


Figure 5: 2D Radiation Pattern Plot of WiFi Antenna (Phi = 90 degree)



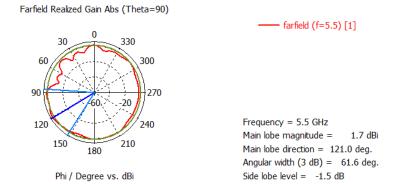


Figure 6: 2D Radiation Pattern Plot of WiFi Antenna (Theta = 90 degree)

- The 2D Radiation Pattern plots are shown in Fig 4 to 6, in 3 different cut planes: Phi = 0 degree, Phi = 90 degree and Theta = 90 degree
- The frequency of reference used is 2.45 GHz and 5.5 GHz (WiFi dual band Center Frequencies)

Design Summary

- The WiFi Antenna used is a PCB Printed , special case of Inverted F type antenna 15.75 x 6.28 mm
- It has a Partial Omni directional pattern
- It uses a single antenna without diversity with a bandwidth of 91.4 MHz and 1.1 GHz.