



# Bluetooth antenna of PCB on-board specification

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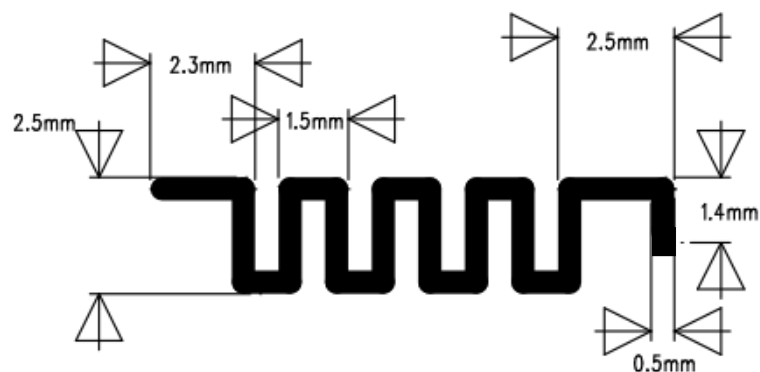
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## 2, Spec Drawing



Ground copper

## 3, Specification

Product Number: 2.4GHZ PCB antenna

Sample Photo:



### A. Electrical Characteristics

|              |                 |
|--------------|-----------------|
| Frequency    | 2400 ~ 2500 MHz |
| S.W.R.       | $\leq 2.0$      |
| Gain         | 2.0 dBi         |
| Efficiency   | ~ 50%           |
| Polarization | Linear          |
| Impedance    | 50 Ohm          |

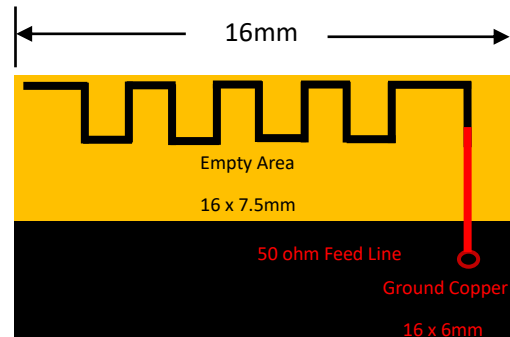
### B. Material & Mechanical Characteristics

|                      |                    |
|----------------------|--------------------|
| Material of Radiator | Gold-plated copper |
|----------------------|--------------------|

### C. Environmental

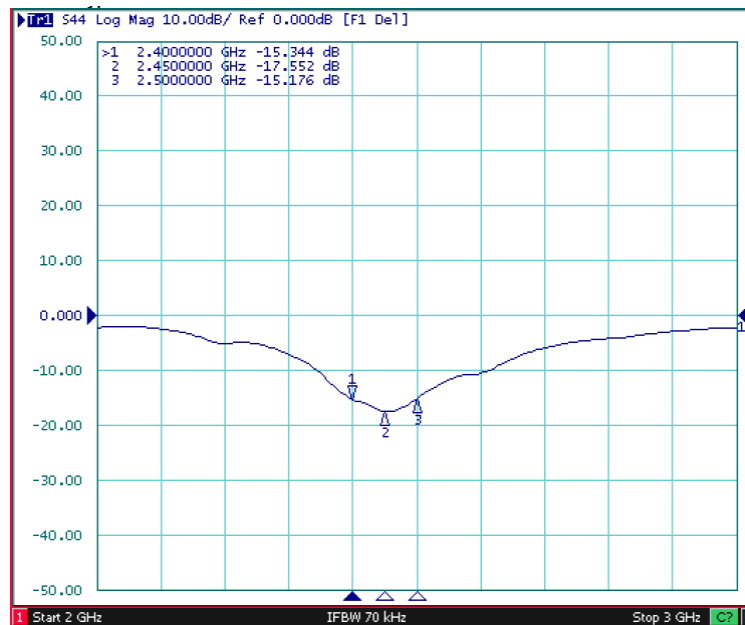
|                       |                  |
|-----------------------|------------------|
| Operation Temperature | - 40°C ~ + 85°C  |
| Storage Temperature   | - 40°C ~ + 105°C |

## 4, Antenna On Test Board



FR4 Thickness 0.8mm

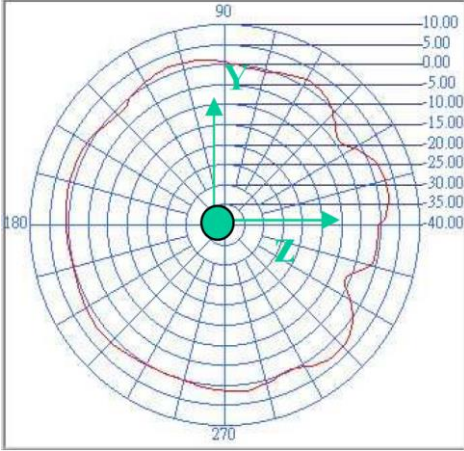
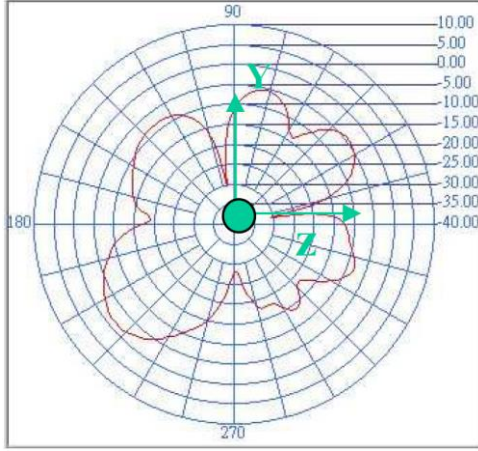
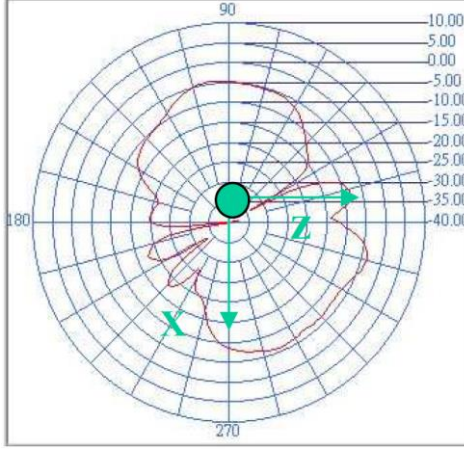
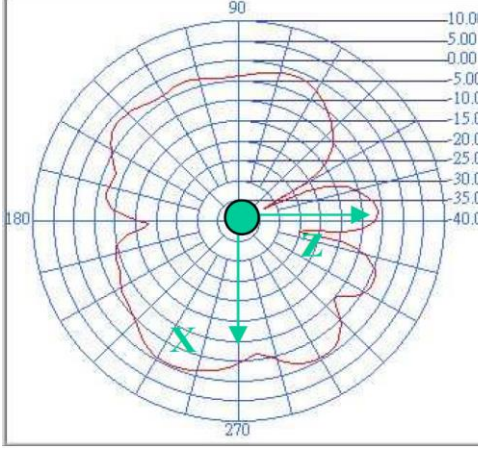
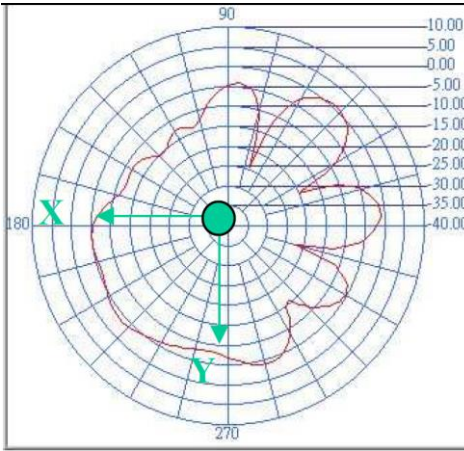
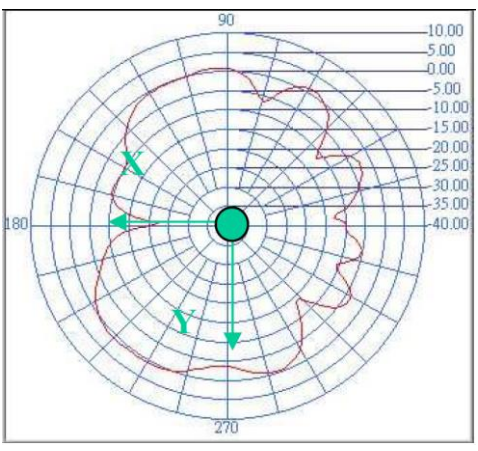
## 5, Return Loss



## 6, Radiation Pattern

Radiation Pattern and Gain were dependent on measurement board design. The specification of PCB antenna was measured based on the PCB size and installation position as shown in the below figure Test Board.



|                                                  | Vertical                                                                            | Horizontal                                                                           |
|--------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Y - Z Plane</b><br><br>Average Gain=1.19 dBi  |    |    |
|                                                  | Peak Gain = 2.00 dBi<br>Average Gain = 0.75 dBi                                     | Peak Gain= -1.33 dBi<br>Average Gain=-8.7 dBi                                        |
| <b>X - Z Plane</b><br><br>Average Gain=-2.91dBi  |   |   |
|                                                  | Peak Gain= -3.71 dBi<br>Average Gain= -8.76dBi                                      | Peak Gain= -0.29 dBi<br>Average Gain= -4.19dBi                                       |
| <b>X - Y Plane</b><br><br>Average Gain=-0.95 dBi |  |  |
|                                                  | Peak Gain= 0.77 dBi<br>Average Gain= -5.86dBi                                       | Peak Gain= 1.35 dBi<br>Average Gain= -2.62 dBi                                       |



**Test Result:**

| Frequency VNA | E Total. dB(dB) | Efficiency |
|---------------|-----------------|------------|
| 2400MHz       | 0.693991        | 41.07%     |
| 2410MHz       | 1.14338         | 47.24%     |
| 2420MHz       | 0.223052        | 40.48%     |
| 2430MHz       | -0.13659        | 33.93%     |
| 2440MHz       | 0.35326         | 37.82%     |
| 2450MHz       | 1.039894        | 42.77%     |
| 2460MHz       | 2.00801         | 50.67%     |
| 2470MHz       | 0.649809        | 41.93%     |
| 2480MHz       | -0.215933       | 36.66%     |
| 2490MHz       | -0.476639       | 34.62%     |
| 2500MHz       | 0.710741        | 40.22%     |