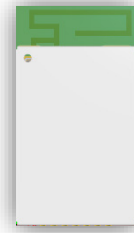


## 1. Description

BDE-ANT-209B is an integrated PCB trace antenna designed for BDE-BDM209B module.

The dimension of the antenna area is 12mm x 4mm x 0.6mm.



## 2. Specifications

Table 1. Antenna Specifications

Electrical	
Frequency (MHz)	2400 - 2500
Efficiency	28.9%
Peak Gain	-0.2dBi
Impedance	50 ohm
Polarization	Linear
Radiation	Omni-directional
Mechanical	
Dimension	12mm x 4mm x 0.6mm
PCB Substrate	FR4
Environmental	
Temperature Range	-40°C to 85°C

## 3. Antenna Characteristics

The antenna characteristics data are measured with the module sitting on the evaluation board as Figure 1 shows.

The dimension of the evaluation board is 68mm x 80mm x1.6mm.

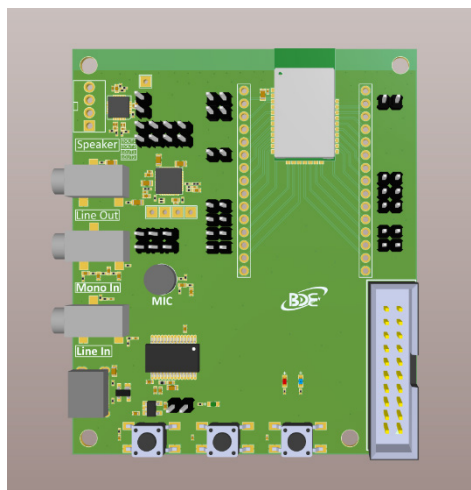


Figure 1. Module Placement

### 3.1 Return Loss

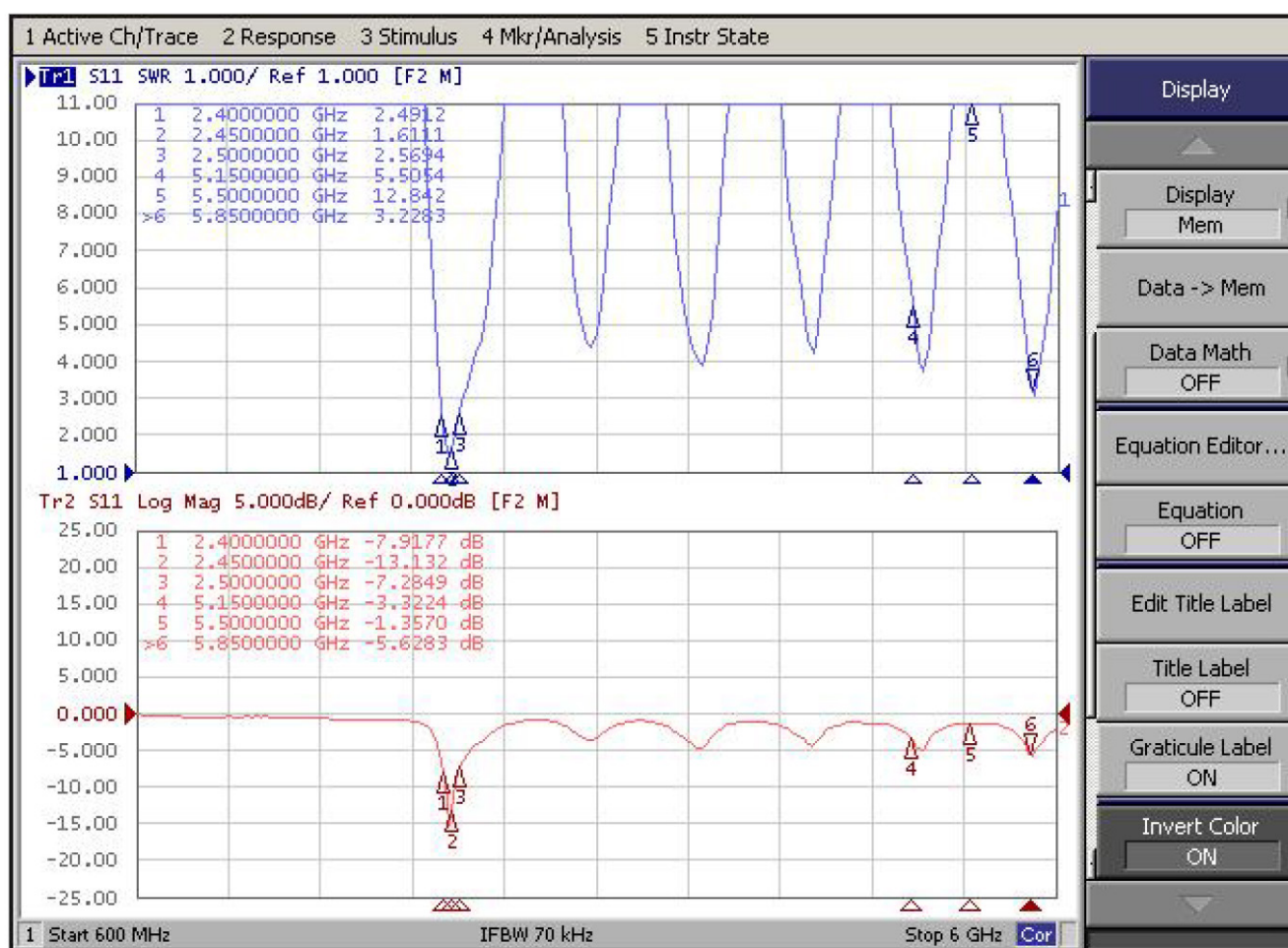
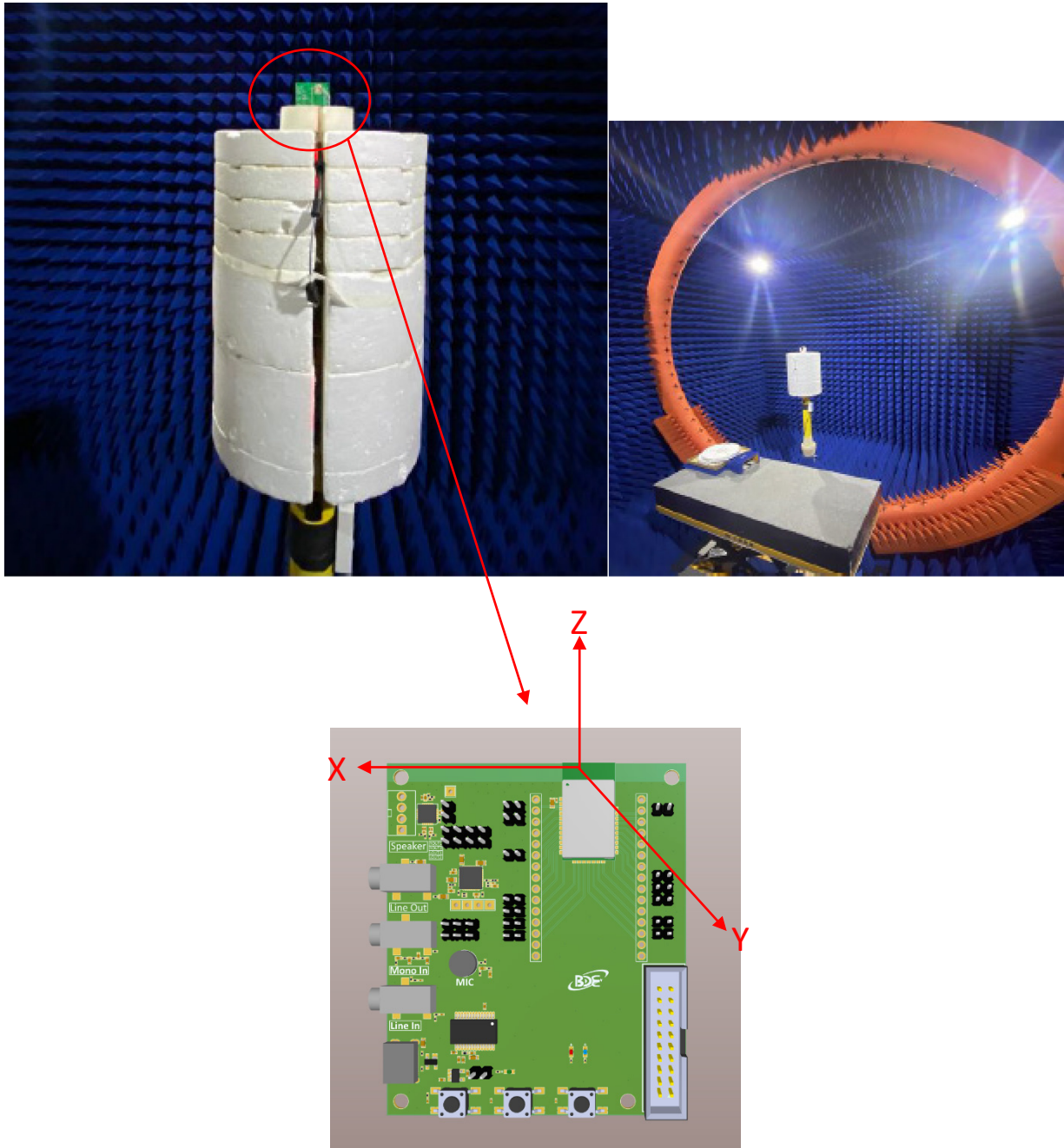


Figure 2. Return Loss

### 3.2 Radiation Pattern

The test setup of measuring radiation pattern is shown as Figure 3.



**Figure 3. Test Setup**

The radiation pattern is recorded as below figures.

2440.0MHz H+V, Eff: 28.9%

Back View

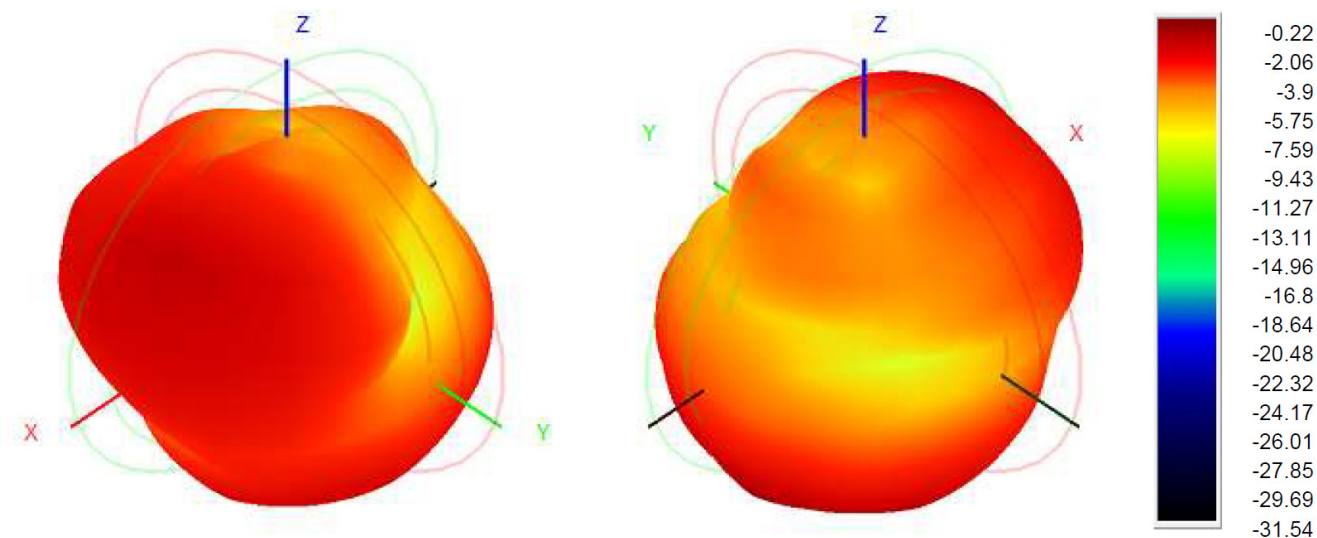


Figure 4. 3D Radiation Pattern at 2440MHz

2440.0MHz Total(E1-XZ), Max= -0.22dBi

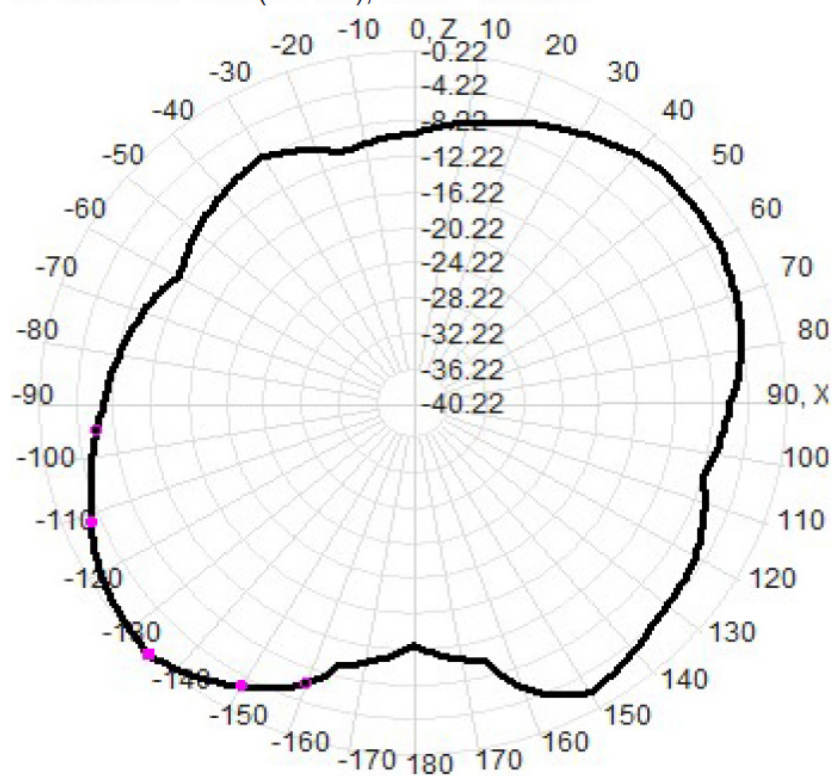


Figure 5. XZ-Plane Radiation Pattern at 2440MHz



2440.0MHz Total(E2-YZ), Max= -3.19dBi

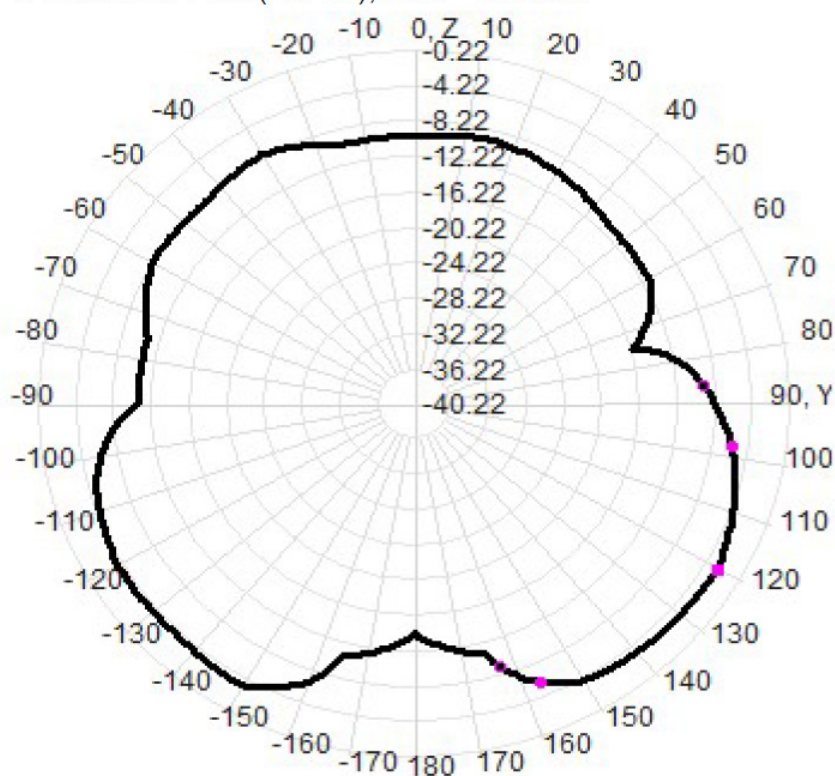


Figure 6. YZ-Plane Radiation Pattern at 2440MHz

Total(H-XY), Max= -5.39dBi, CirD=6.04

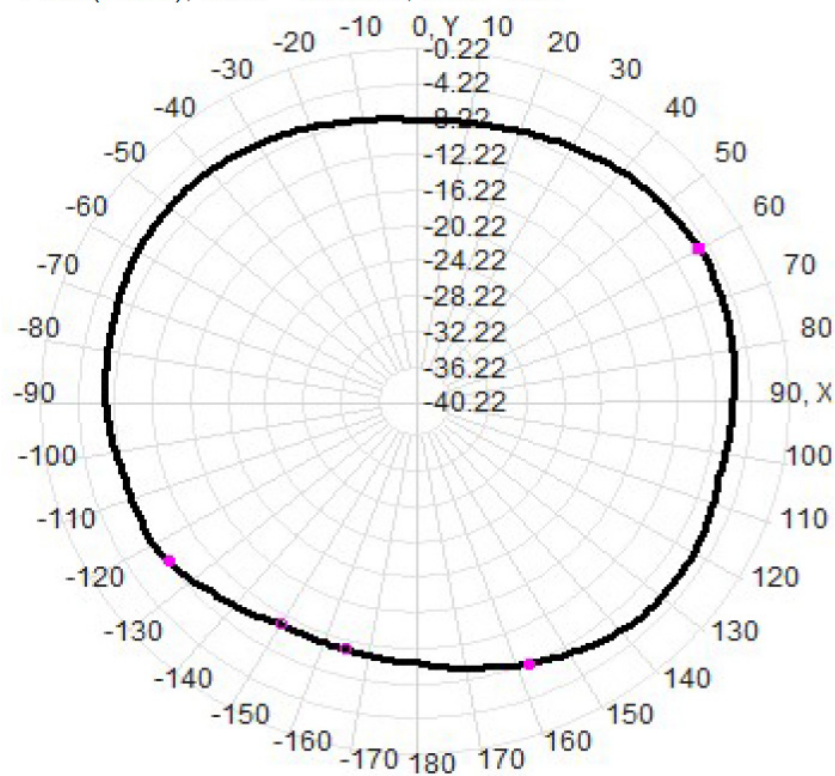


Figure 7. XY-Plane Radiation Pattern at 2440MHz

### 3.3 Efficiency and Gain

Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	21.7	-1.4
2410	24.9	-1.1
2420	26.9	-0.4
2430	27.4	-0.3
2440	28.9	-0.2
2450	27.6	-0.3
2460	26.5	-0.7
2470	26.0	-1.0
2480	26.0	-0.9
2490	24.9	-1.1
2500	23.3	-1.1

## 4. Revision History

Revision	Description	Date
V1.0	Initial release	2024/11/14

## Important Notice and Disclaimer

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