

ANTENNA PASSIVE TEST REPORT TABLE OF CONTENTS

Applicant	Nebula Electronic Technology Corporation
Manufacturer	Nebula Electronic Technology Corporation
Product Name	BT938 BLE Module
Model No	BT938-2
Date Initial Sample(s) Received	2025-06-18
Testing Date	2025-06-18

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## 1. General Information

### 1.1 Details of Client

Applicant	Nebula Electronic Technology Corporation
Address:	Room 1504, No. 8, Lane 777, Gaoke East Road, Pudong New Area, Shanghai
Manufacturer	Nebula Electronic Technology Corporation
Address:	Room 1504, No. 8, Lane 777, Gaoke East Road, Pudong New Area, Shanghai

### 1.2 General Description of EUT

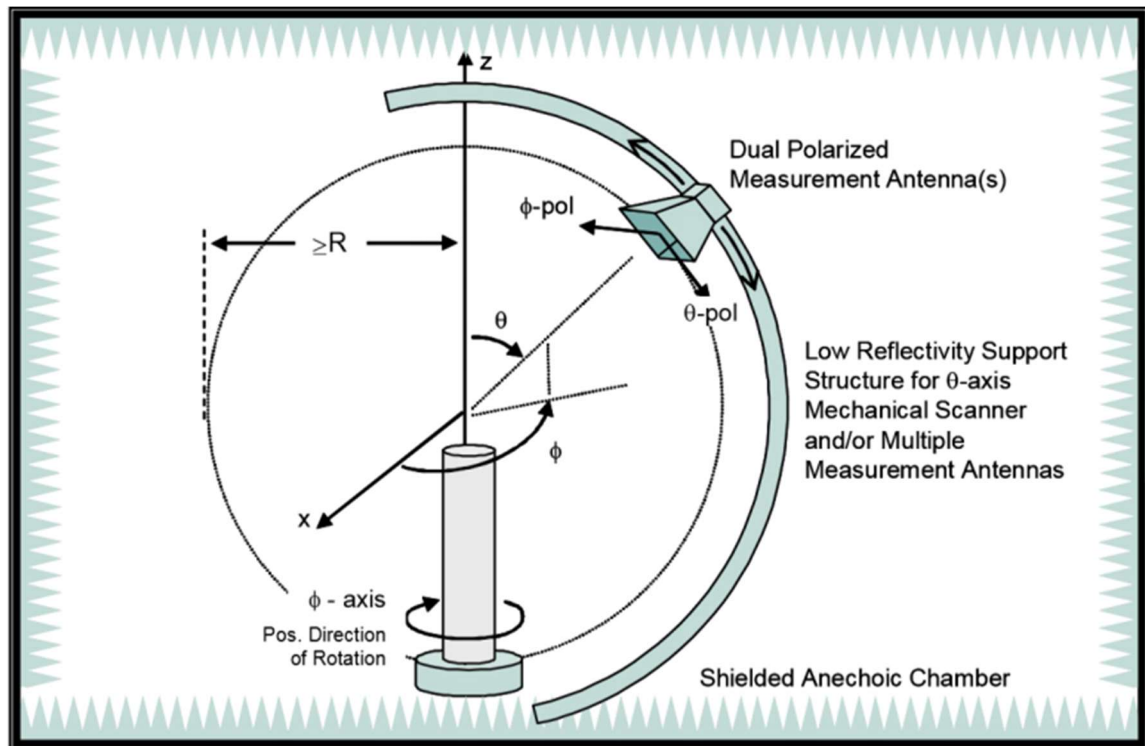
Device Description:	BT938 BLE Module
Device Model:	BT938-2
Hardware Version:	N/A
Software Version:	N/A

### 1.3 Laboratory Environment

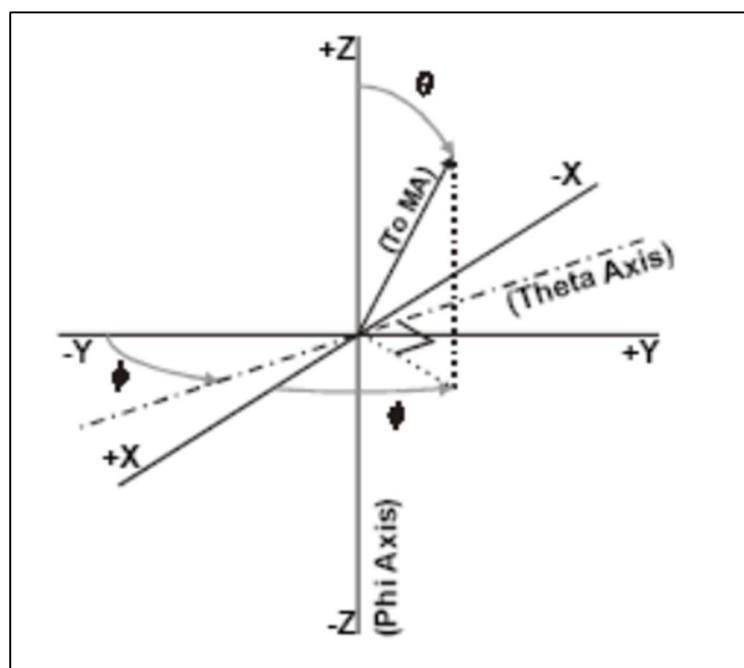
Temperature	Min. =19°C, Max. = 25°C	
Relative humidity	Min. =40%, Max. =72%	
Shield effect	0.7-6GHz	> 100dB
Ground resistance	<0.5Ω	

## 2.1 Test Configuration

Conical-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 1.5m



### Spherical coordinate system

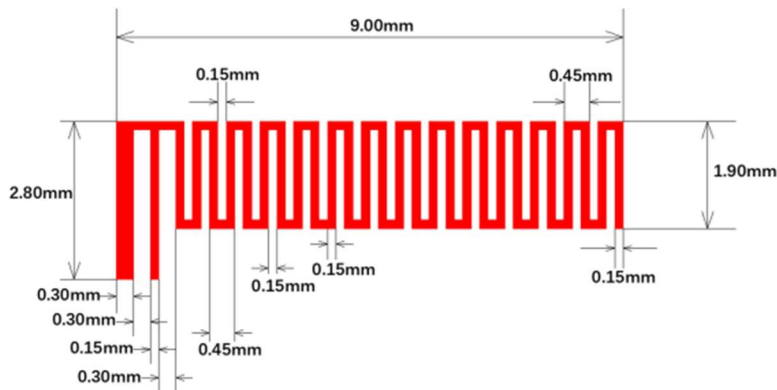


## 3. The ANT SPEC.

The module antenna is an on-board antenna with a size of 15.1mm×11.2mm。 The following figure shows the dimension of the antenna。 The PCB is double-sided FR4 with a thickness of 0.8mm 。

PCB Antenna for BLE Chips of WCH

### 1. Dimension of Antenna :



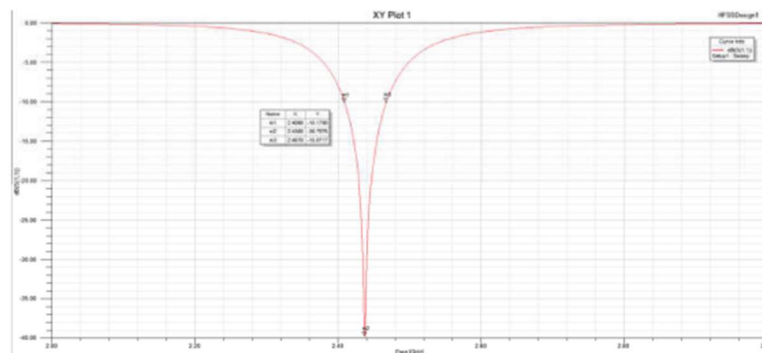
### 2. Features:

- Dimension: 2.8\*9.95mm
- Terminal impedance: 50 ohm
- Max Gain:1.2dBi
- RF Frequency: 2.4GHz

### 3. S parameter

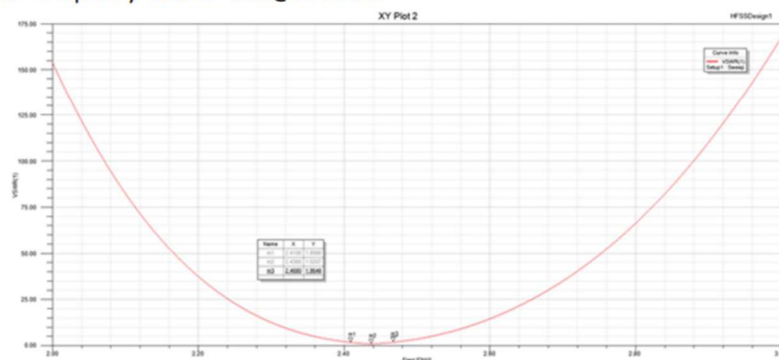
Working bandwidth:62MHz

S11: -38.4dB@2.438GHz

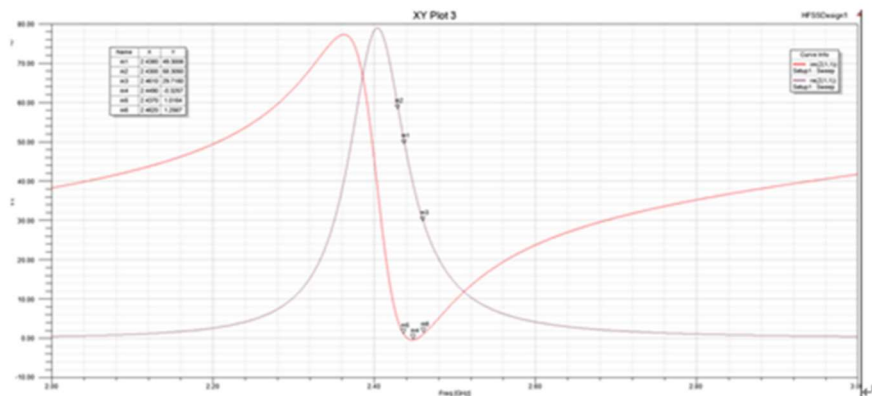


### 4、VSWR

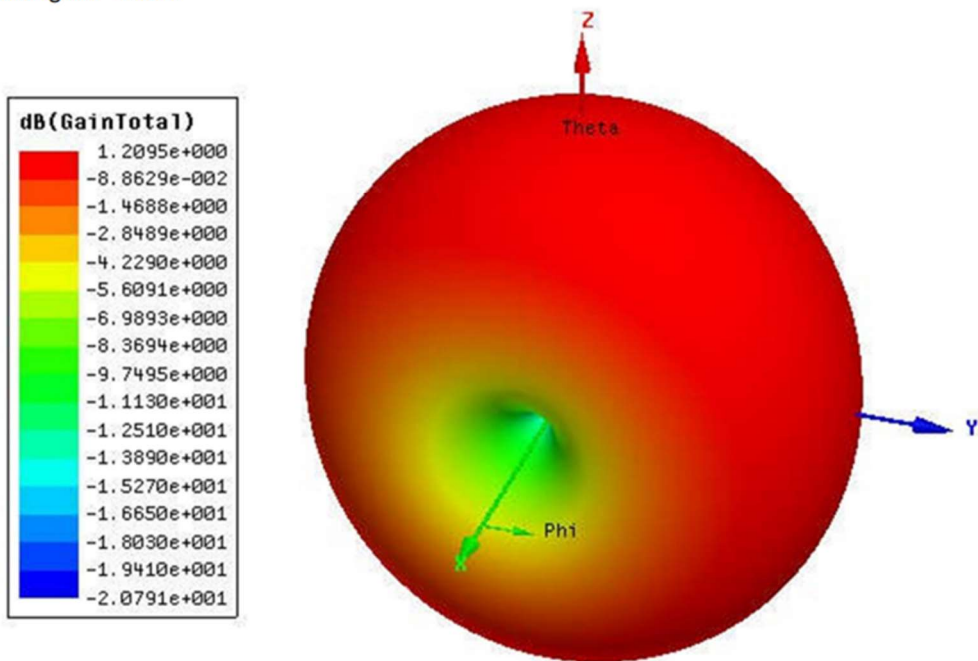
Central Frequency VSWR: 1.03@2.438GHz



Central Frequency impedance : 50 ohm @2.438GHz



5、Gain  
max gain: 1.2dBi



E plane:

