



**Shenzhen DEWEIMA Communication Equipment Co.,Ltd**

# **SPECIFICATION SHEET FOR APPROVAL**

<b>CUSTOMER NAME</b>	Shenzhen Ruiyi Business Technology Co.,Ltd
<b>CUSTOMER P/N</b>	R-MSB02
<b>PART NAME</b>	WIFI and BT Antenna
<b>DWM NO.</b>	
<b>APPROVAL REV.</b>	DWM-V1.0

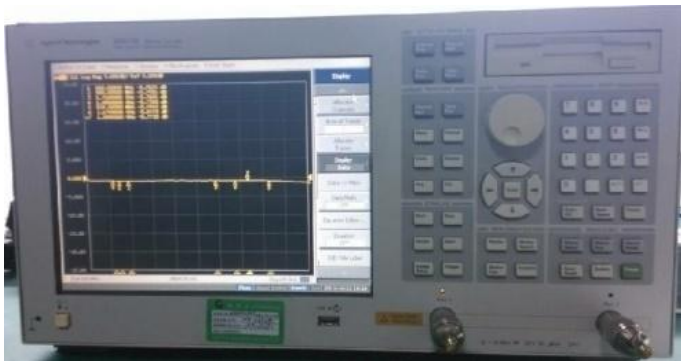
<b>CONTRACTOR</b>			<b>DATE : 2024-07-08</b>
<b>QA CHECKED</b>	<b>ME CHECKED</b>	<b>RF CHECKED</b>	<b>MANAGER CHECKED</b>

<b>CUSTOMER</b>		<b>DATE :</b>
<b>Approved By</b>	<b>Checked By</b>	<b>Prepared By</b>

## 1. Product Application

Terminal of the antenna products can only be used for WIFI and BT antenna.

## 2. The test environment, equipment

Item	Description	Test Condition	Requirement
2.1	Passive testing	The VSWR measurement devices are connected in sequence: Agilent5071B Network Analyzer →measurement Cable → Customer-providing Devices.	VSWR: 2400-2500MHz $\leq$ 2
		Test equipment	
			
Item	Description	Test Condition	
2.2	Active test	The antenna is tested within the cell mainboard provided by clients. Follow picture shows the measurement condition of the antenna been put on the measurement device, which is used for all measurement of electric performances.	
2.3	Microwave	Test equipment	



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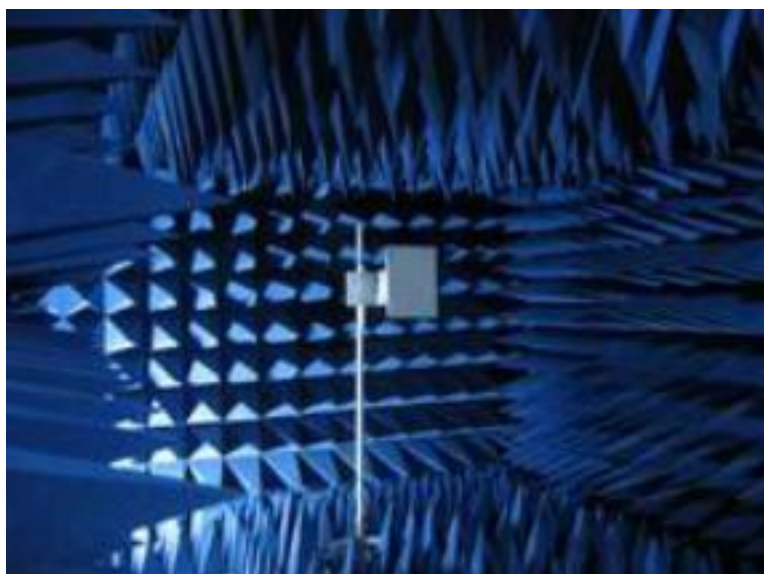
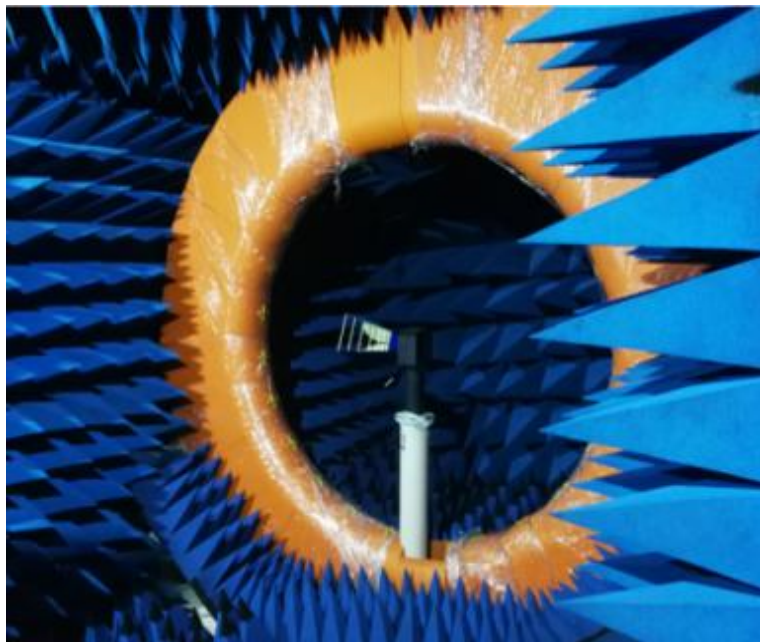
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Anechoic  
chamber  
(Satimo&ETS  
)





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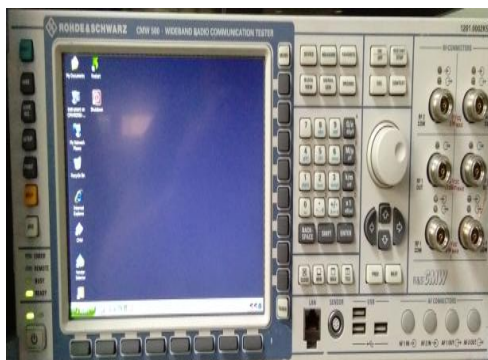
2.4

CMW500

Agilent5071B

AgilentE4405B

Agilent8960





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### 3. WIFI Antenna description

#### 3.1 WiFi Technology Parameters

WiFi Frequency Range: 2400MHz-2500MHz

WIFI antenna type: Dipole antenna

Model: CF591BLE-WIFI-DWM

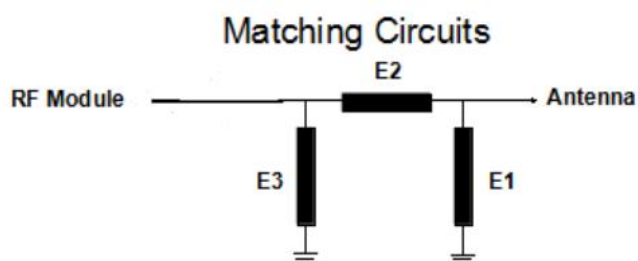
Manufacture: Shenzhen DEWEIMA Communication Equipment Co.,Ltd

Operating Humidity: 85% R.H.MAX

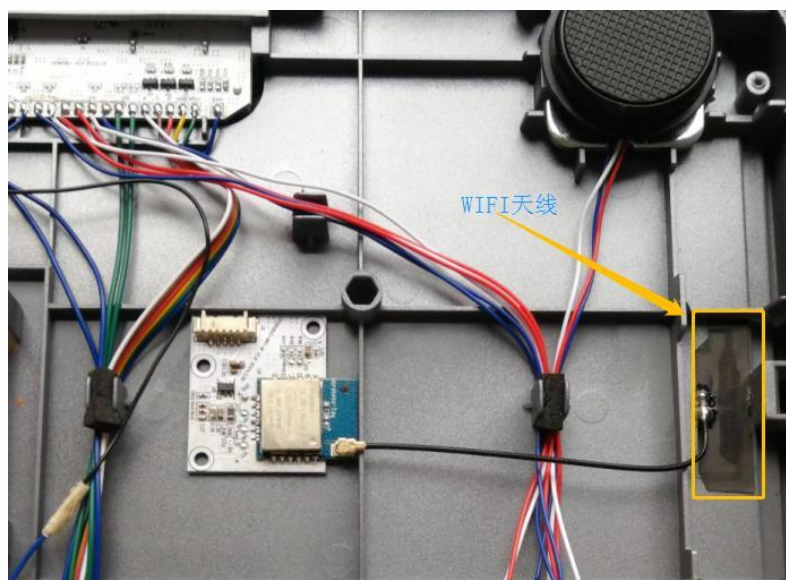
Temperature Rating: -40℃~+85℃

#### 3.2 WiFi matching circuit

Element	Value
E1(0402)	1.8pf
E2(0402)	3nH
E3(0402)	2.4pf
Parameter not changed	



#### 3.3 WiFi antenna position







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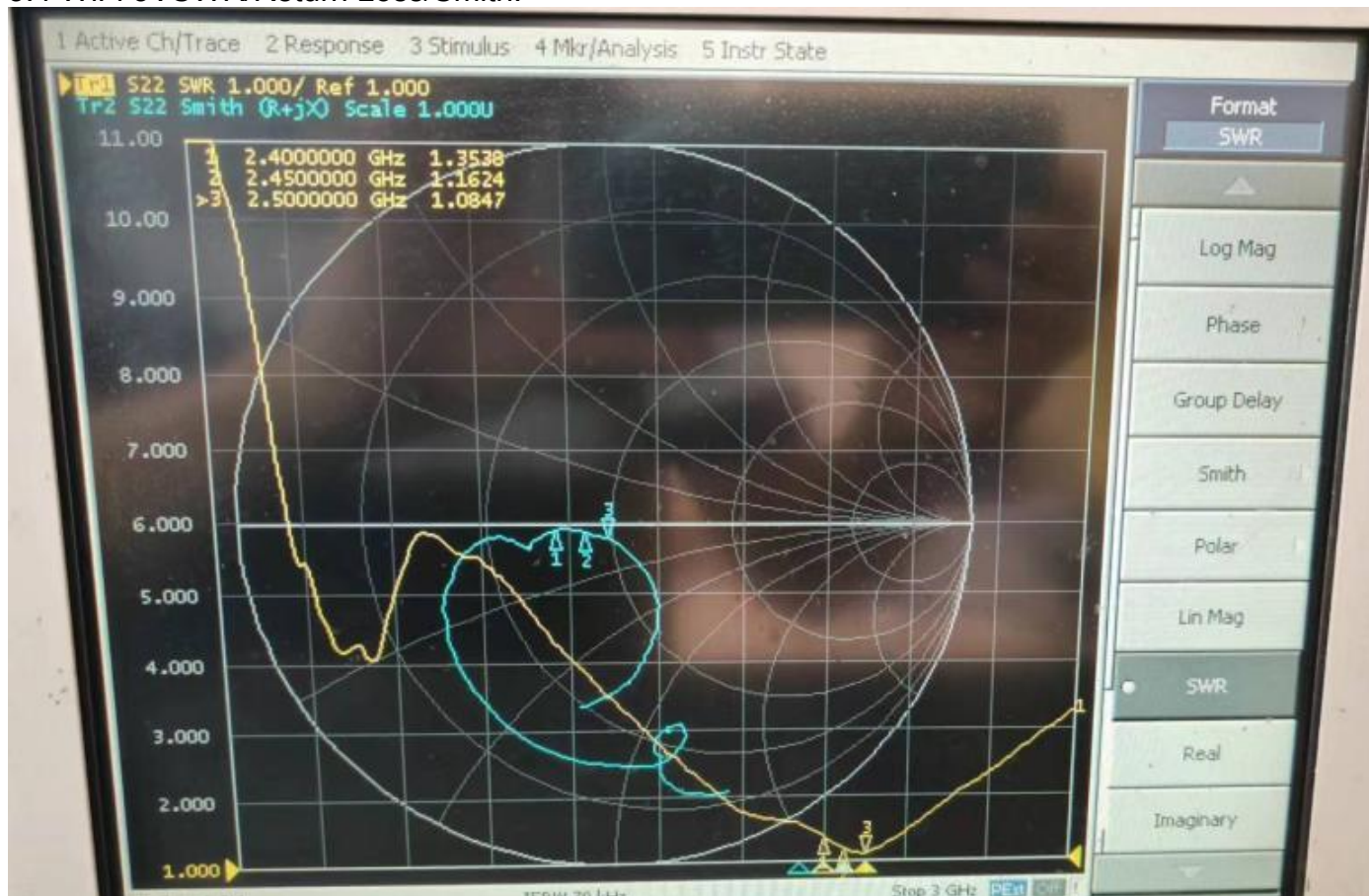
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### 3.4 WiFi 3VSWR/Return Loss/Smith:



### 3.5 WiFi Efficiency And Gain:

Gain&Efficiency 增益、效率			
Frequency 频率(MHz)	Gain 增益(dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
2400.00	2.13	-4.17	38.28
2410.00	2.32	-3.98	39.96
2420.00	2.07	-4.18	38.21
2430.00	2.52	-3.78	41.91
2440.00	2.69	-3.49	44.74
2450.00	2.85	-3.15	48.43
2460.00	2.54	-3.40	45.76
2470.00	2.64	-3.20	47.81
2480.00	2.11	-3.64	43.23
2490.00	1.69	-4.06	39.24
2500.00	1.39	-4.46	35.85



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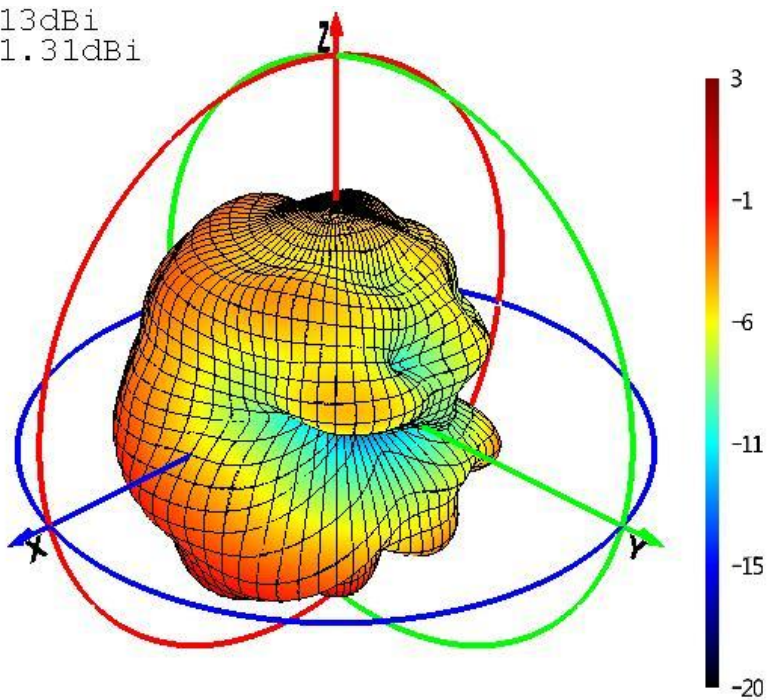
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### 3.6. WiFi 3D Pattern

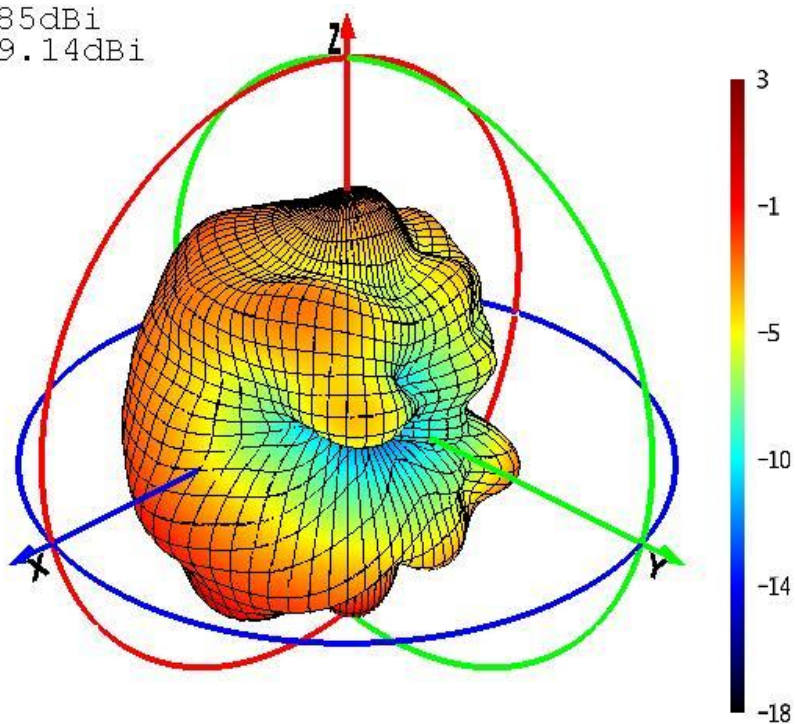
2400MHz

MAX: 2.13dBi  
MIN: -21.31dBi



2450MHz

MAX: 2.85dBi  
MIN: -19.14dBi





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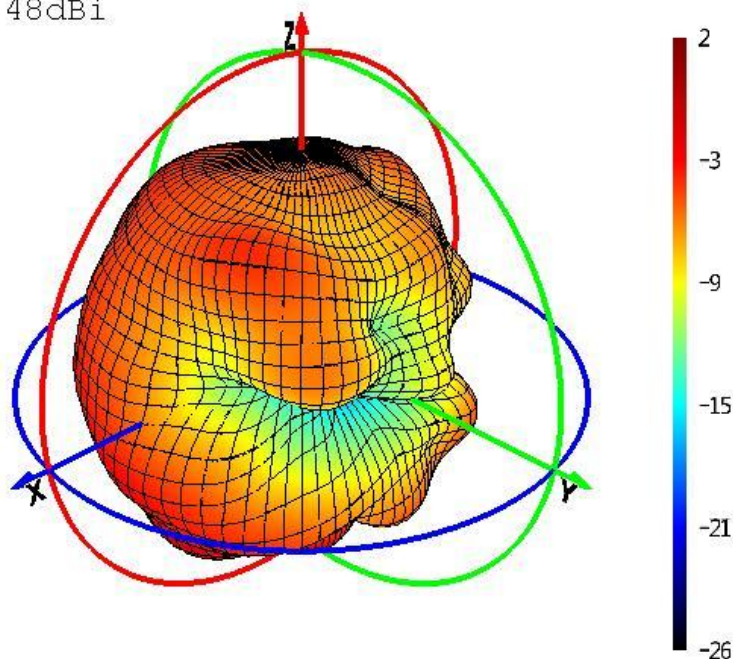
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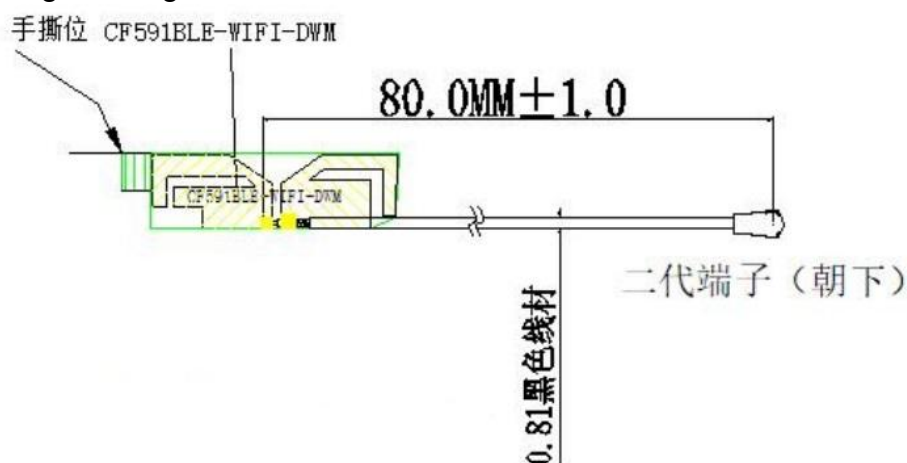
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2500MHz

MAX: 1.39dBi  
MIN: -27.48dBi



### 3.7 WiFi Engineering drawings:



#### NOTE:

1. The material is electrolytic copper+PI (one pair and half), and the overall thickness is less than 0.07mm .
2. The surface is black, and the back is a whole piece of 3M 300 LES adhesive.
3. The cross section is made of copper wire, and the green diagonal section is not made of copper, leaving the base material for connection. The overall profile follows the profile profile.
4. Comply with the latest terms of ROHS2.0, manage in accordance with the environmental protection requirements of local regulations.





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### 4. BT Antenna description

#### 4.1 BT Technology Parameters

Manufacture: Jiangxi Xinmanda Circuit Co., Ltd

Address: Building B1, Block D11-1-B, Jizhou District industrial park, Ji'an, Jiangxi province

Antenna Model: NA

BT antenna type: PCB antenna

BT Frequency Range: 2400MHz-2500MHz

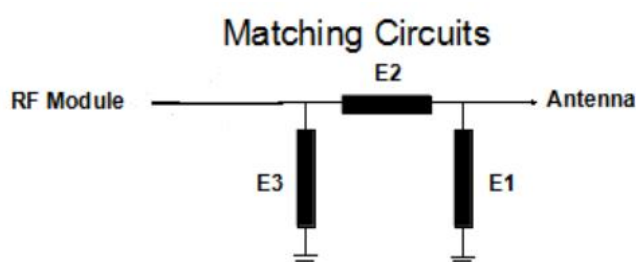
Maximum antenna gain: -0.50dBi

Operating Humidity: 85% R.H.MAX

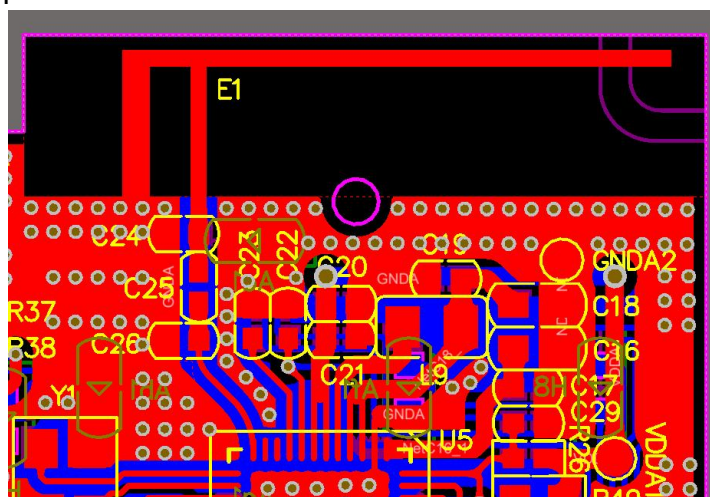
Temperature Rating: 5°C ~ +40°C

#### 4.2 BT matching circuit

Element	Value
E1(0402)	NC
E2(0402)	1.5nH
E3(0402)	NC
Parameter not changed	



#### 4.3 BT antenna position





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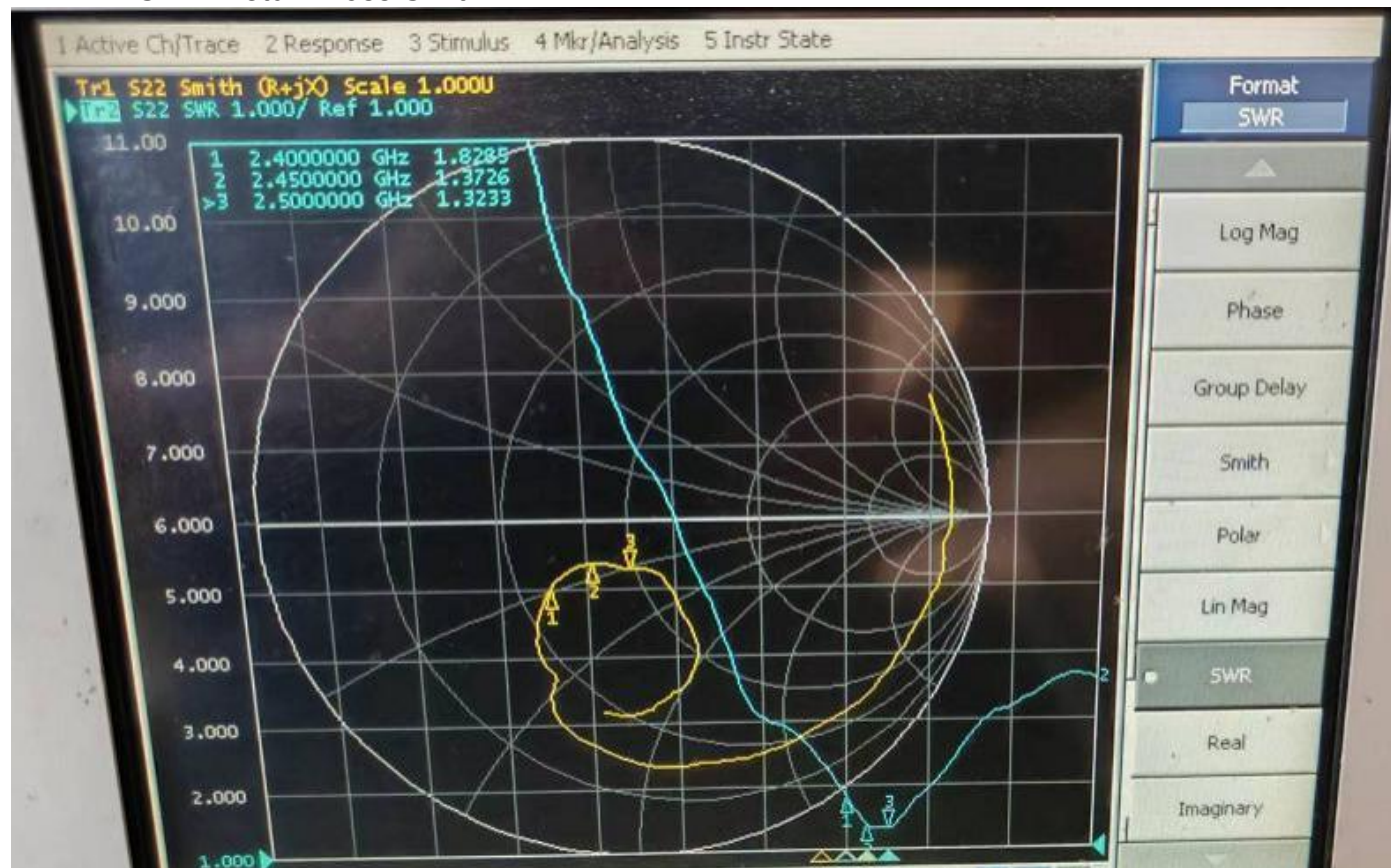
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### 4.4 BT VSWR/Return Loss/Smith:



### 4.5 BT Efficiency And Gain:

Gain&Efficiency&PhaseCenter 增益、效率和相位中心				
Frequency 频率(MHz)	Gain 增益(dBi)	MinGain 最小增益	Efficiency 效率(dB)	Efficiency 效率(%)
2400.00	-1.52	-32.24	-6.66	21.56
2410.00	-1.23	-30.59	-6.65	21.65
2420.00	-0.90	-29.58	-6.62	21.76
2430.00	-0.50	-28.17	-7.38	18.28
2440.00	-0.72	-26.92	-6.38	23.00
2450.00	-0.53	-25.49	-6.29	23.51
2460.00	-0.75	-24.49	-5.30	29.52
2470.00	-0.67	-24.03	-4.91	32.26
2480.00	-0.85	-25.03	-4.77	33.37
2490.00	-0.93	-27.06	-4.96	31.88
2500.00	-1.13	-28.25	-5.78	26.44



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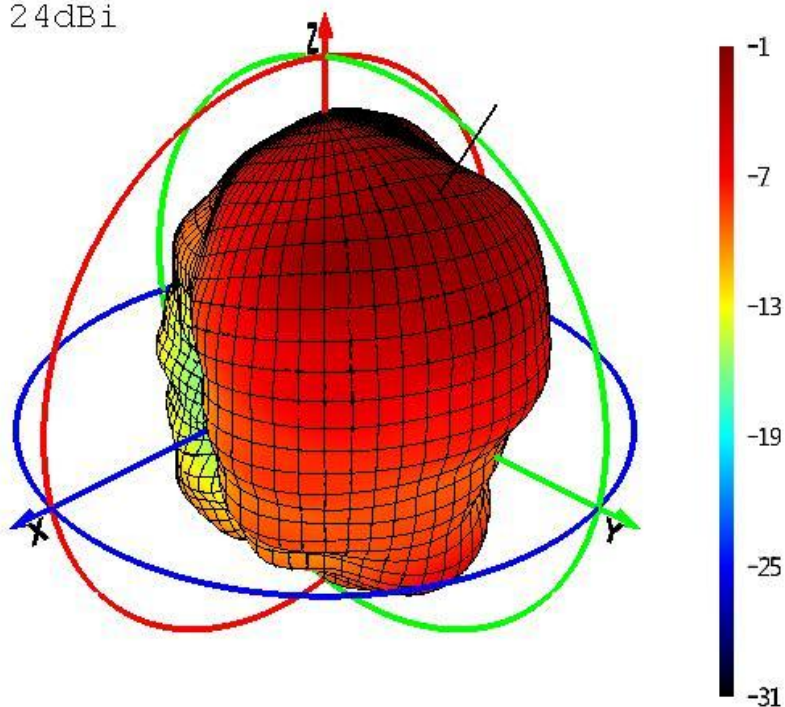
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### 4.6. BT 3D Pattern

2400MHz

MAX: -1.52dBi

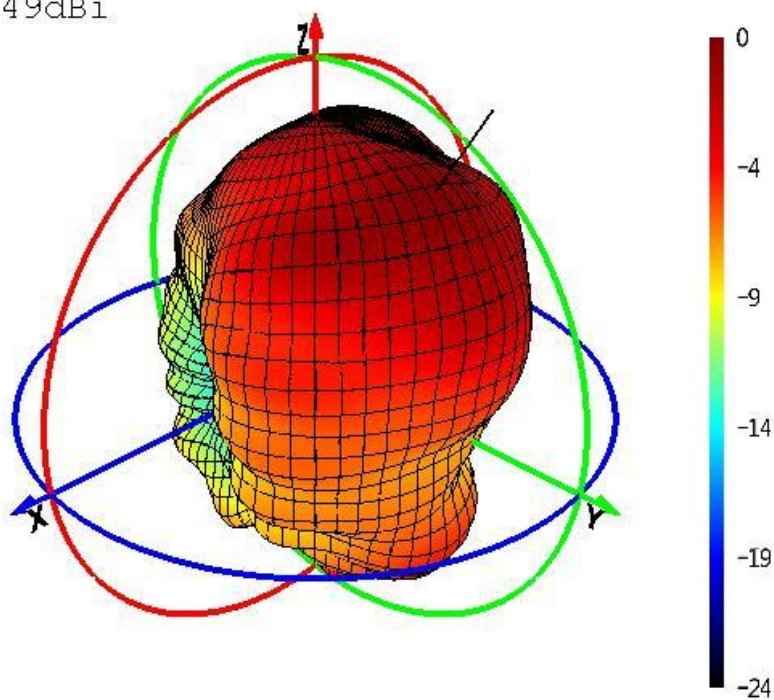
MIN: -32.24dBi



2450MHz

MAX: -0.53dBi

MIN: -25.49dBi







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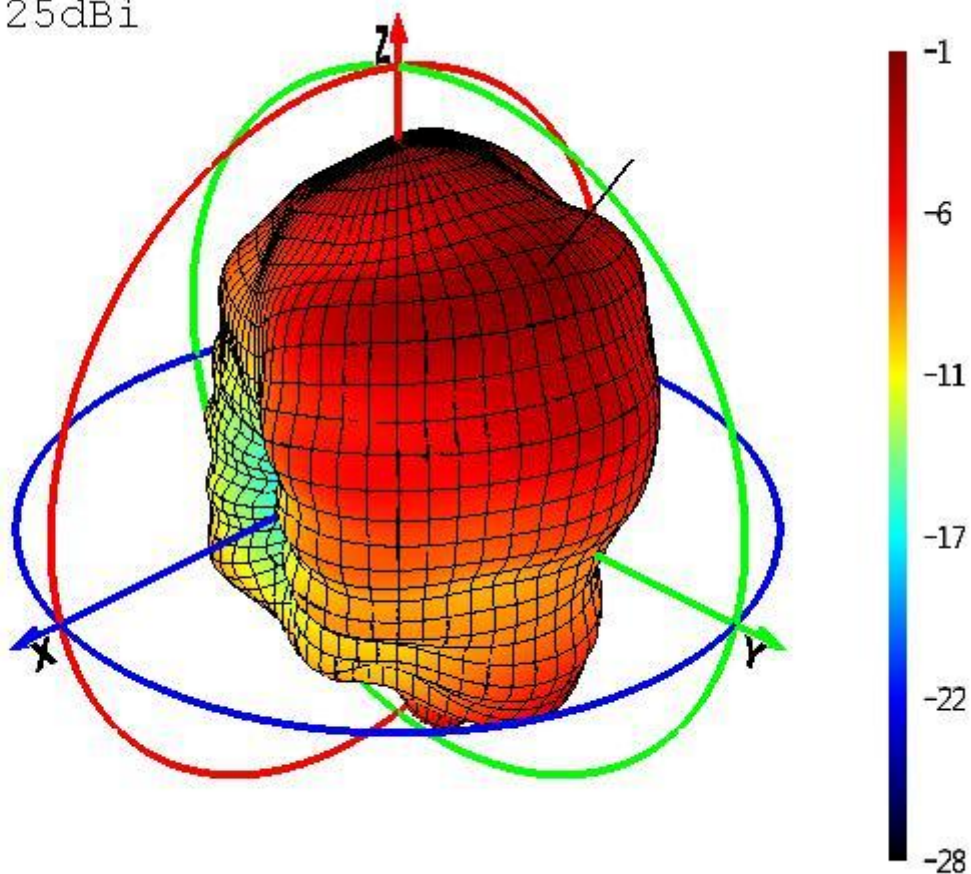
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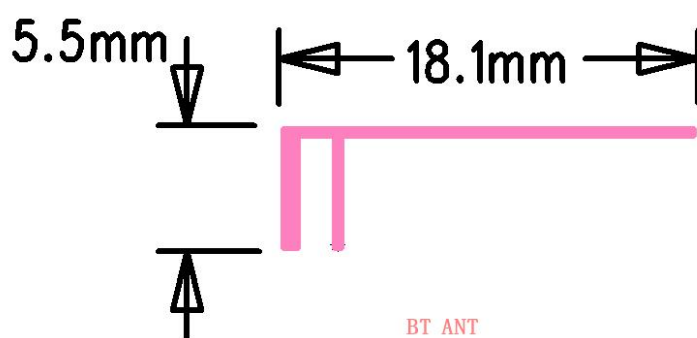
2500MHz

MAX: -1.13dBi

MIN: -28.25dBi



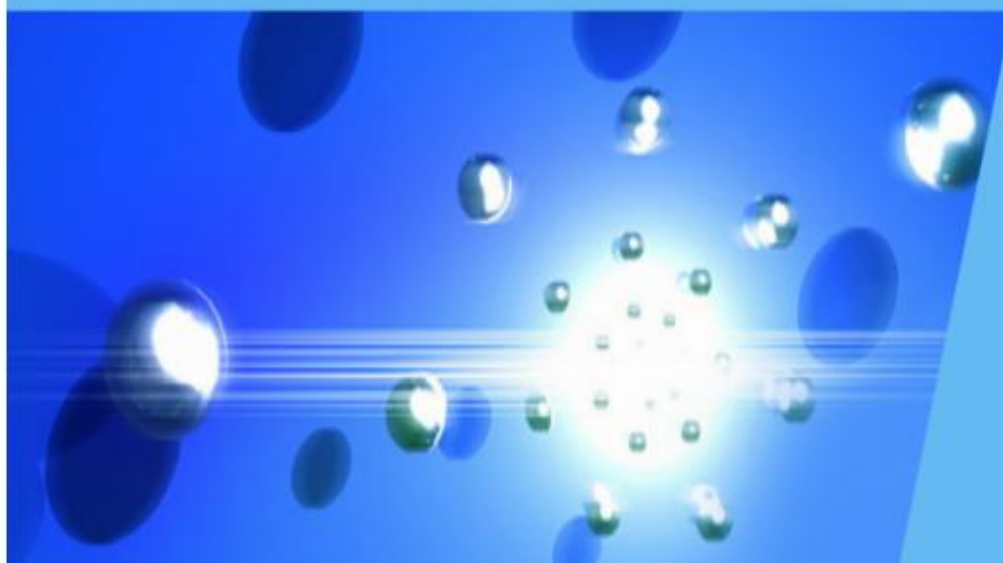
### 4.7 BT Engineering drawings:



PCB on-board antenna



Professional RF R&D institutions



# Thank You !

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