

# Antenna Datasheet

## 2.4G External Patch Antenna

Model:

BW2.4GTWX105-15SL1000J

Description:

2.4G External Patch Antenna with SMA Male Jack RG174 1000mm Length

Features:

2400-2500 MHz Frequency Range

SMA Male Jack (Inner Thread, Inner Pin) Connector

Cable Type: RG174

Cable Length: 1000mm

360° Omnidirectional Radiation

Dimensions: 116mm x 21.6 mm

Compliant with RoHS & REACH Regulations

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## BW2.4GTWX105-15SL1000J

### Part Number Explanation

BW	Company	Bat Wireless
2.4G	Frequency	2400-2500MHz
T	Name	Patch Antenna
W	Type	External
X	Constant	X
105-15	Dimensions	116-21.6mm
S	Connector	SMA
L	Length	Length
1000	Cable Length	1000mm
J	Connector	SMA Male

### Selection Table

Connector	IPEX-1	IPEX-2	IPEX-3	IPEX-4	IPEX-5	SMA	Customizable
Cable Length	100	150	200	250	300	500	Customizable
Cable Type	RG0.81	RG1.13	RG1.37	RG174	RG178	RG316	Customizable

## 1. Description

The Bat Wireless **BW2.4GTWX105-15SL1000J** is a high-performance omnidirectional external patch antenna specifically designed for the 2.4GHz frequency band. It integrates strong penetration, omnidirectional coverage, and easy deployment. Adopting a microstrip patch structure, the antenna is thinner and lighter than traditional omnidirectional antennas, making it suitable for embedded or external installation and long-term use in complex environments. With an adhesive mounting method, it can be conveniently installed on device casings, walls, or metal surfaces to achieve quick deployment. Its compact and lightweight design further meets the needs of scenarios such as vehicle-mounted, industrial, and outdoor applications, providing stable and low-loss connections for WiFi routers, security monitoring, and IoT devices.

#### Classic Application Scenarios:

Wi-Fi extension: Enhancing the coverage range of wireless routers and APs (access points)

Internet of Things (IoT): Applied to smart homes, industrial wireless sensors, etc.

UAVs & remote control devices: Providing stable 2.4GHz communication links

Security monitoring: Antenna solution for wireless cameras and remote monitoring devices

Bat Wireless provides customized services to optimize your equipment. We have a mature R&D team that can respond quickly to meet your needs. If you have any requirements, please contact our sales and FAE.



## 2. Specification

Parameters	Typ.	Unites	Notes
<b>Electrical Characteristics</b>			
Antenna Type	Patch Antenna		
Frequency Range	2400-2500	MHz	
Input Impedence	50	$\Omega$	
V.S.W.R	<1.7		
Gain	1	dBi	
Polarization Type	Vertical		
Power Capacity	50	W	
Lightning Protection	-		
DC Voltage	-	V	
Radiator	-		
<b>Mechanical Characteristics</b>			
Dimensions	116 x 21.6	mm	
Connector Type	SMA-J Male (Customizable)		
Cable Type	RG174		
Cable Length	1000	mm	
Mount way	Screw-on		
Color	Black		
Meterial	ABS		
Weight	25	g	
<b>Environmental Characteristics</b>			
Waterproof Rating	-		
ROHS Complaint	Compliant		
Operating Temperature	-45~ +85	$^{\circ}\text{C}$	
Storage Temperature	-45~ +85	$^{\circ}\text{C}$	

3. Product Picture

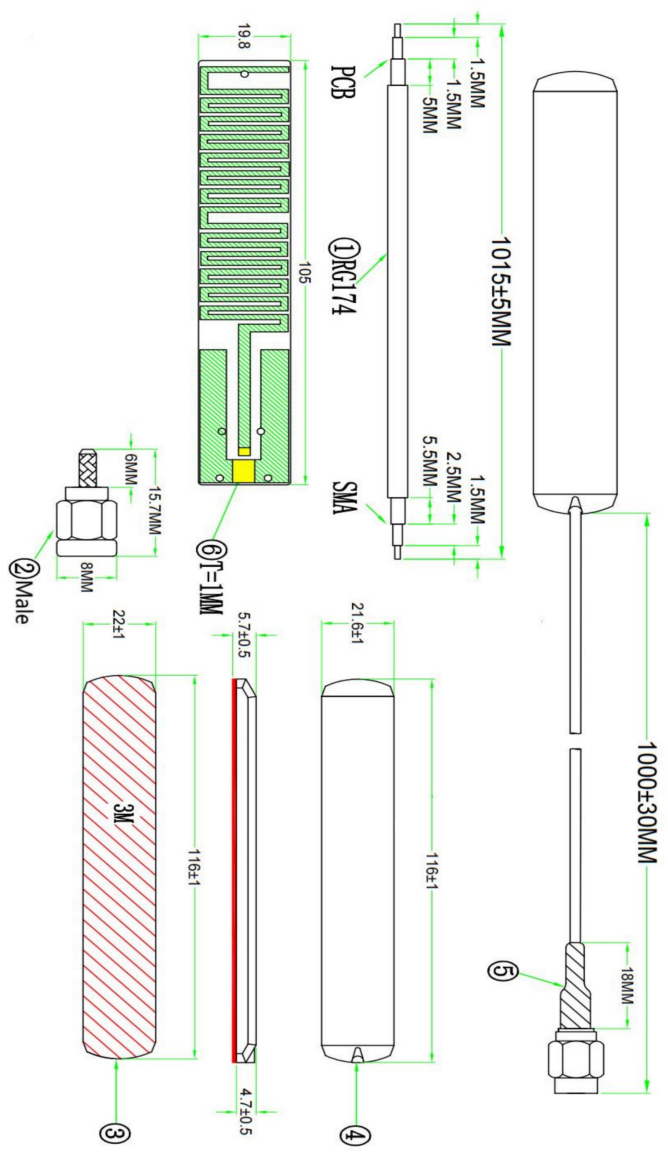


# 4. Mechanical Drawing

PARTS DRAWING ROHS Compliant

REV	PRODUCT NO.	DATE	NAME	DESCRIPTION

- Requirements:
1. The wire jacket shall be free from cuts or damage.
  2. 100% continuity testing shall be performed, and all products must pass.
  3. 100% full inspection is required, and all products must meet specifications.
  4. Eco-friendly manufacturing processes shall be adopted, and finished products must comply with ROHS requirements.
  5. Unless otherwise specified, general tolerances shall apply.



NO	Code	Name	Description	Q'ty
6		PCB	105*19.8*1MM	1
5		Heat Shrink Tubing	3.5 Heat Shrink Tubing White L=18MM	1
4		3M Tape	4G Tape 116*21.6*5.8MM Black	1
3		3M Red Tape	116*22MM	1
2		SMA	Male	1
1		Wire	RGS174 Black L=1015MM	1

Frequency		2400-2500MHZ
Gain	1DBi	
VSWR	<1.7	
Polarization	Vertical	
Impedance	50Ω	
Operating Temperature:		-45°C~85°C
Storage Temperature:		-45°C~85°C

ANGLE PROJECTION	
	First angle projection

PRODUCT NAME			
Patch Antenna-2400-2500MHZ-SMA Male-L=1000MM			
UNIT	MM	SIZE	1:3
PAGE	1 OF 1	FORMMT	A4

GENERAL TOLERANCES			
100-200 :	± 3.00		
50-100 :	± 2.00		
25-50 :	± 0.20		
10-25 :	± 0.15		
1-10 :	± 0.10		

## 5. Test Equipment



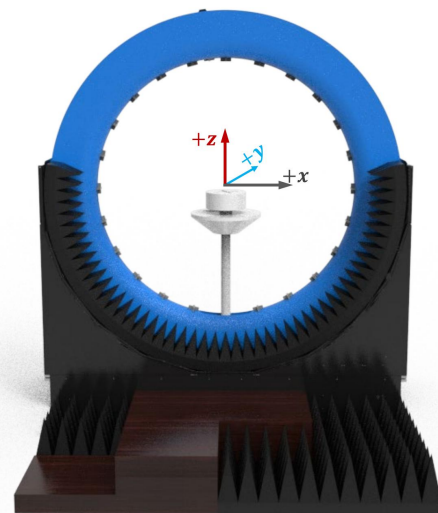
Keysight/E5071C Network Analyzer



R&amp;S/CMW500 Comprehensive Tester



R&amp;S/SMBV100B Signal Generator



### DT-3500 Datasheet

#### Specification:

Specification:	Description
Test Frequency	400MHz-8.5GHz
System Size	L*W*H=4*3.5*3.5m
Number of Probes	23 (Probe) + 1 (link)
Interval Angle	15°
Sampling Diameter	2200mm
Carring Capacity	≤40kg

#### Testing Capability

#### Description

##### Active measurement

**Capability** : TRP、TIS、EIRP、EIS,. etc  
**Mode** : 2G/3G/4G/5G、Wi-Fi b/g/n/a/ac/ax、BT、NB-IOT、Cat-M (eMTC)、GPS/BEIDOU/GLONASS、ZigBee、LoRa(Non-Signaling),.etc

##### Passive measurement

**Test category** : Gain、Efficiency、2D pattern、3D pattern、Pattern roundness、Axial Ratio、ECC,Phase center,. etc  
**Polarization** : Circular polarization, linear polarization, elliptical polarization



## RF Link diaram of multi probe spherical near-field testing system

RF Link Overview



RF Link of Passive measurement



RF Link Overview

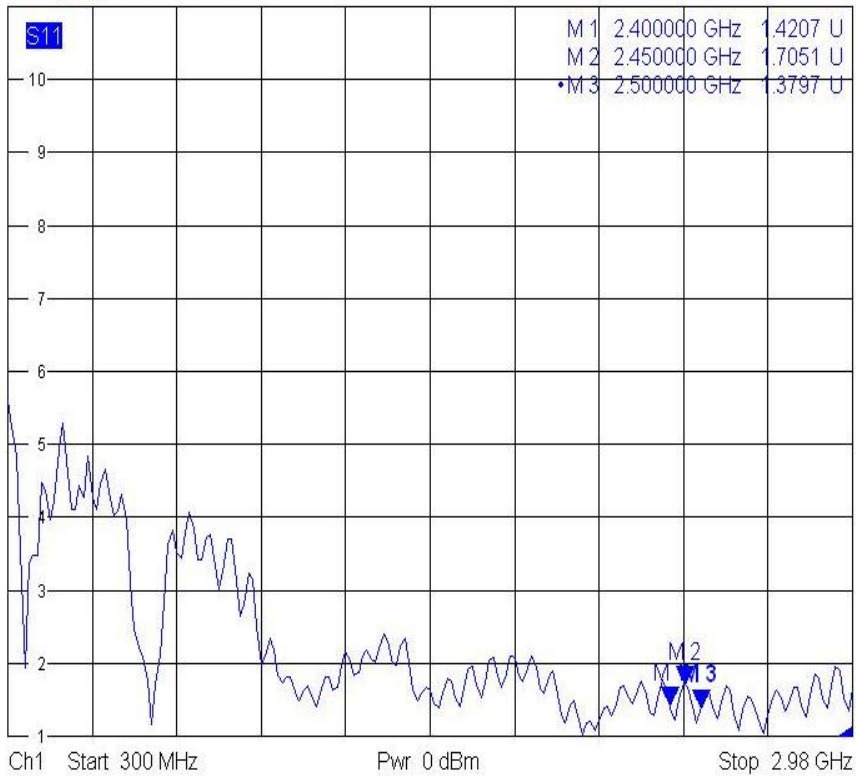


RF Link of Passive measurement

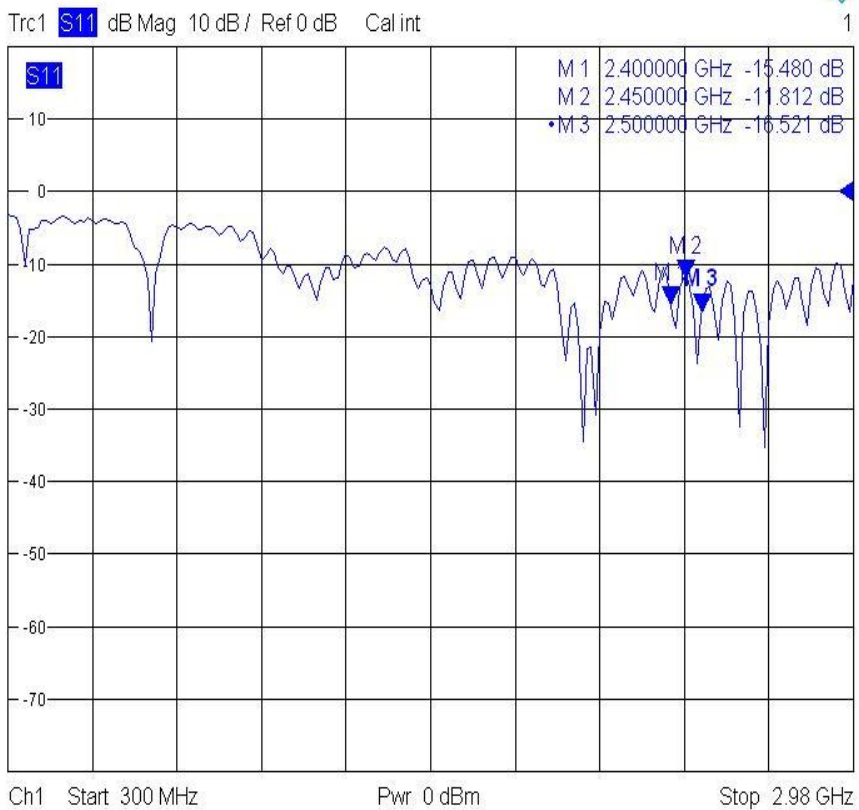


## 6. Performance Data

6.1 VSWR Trc1 S11 SWR 1 U / Ref 1 U Cal int 1

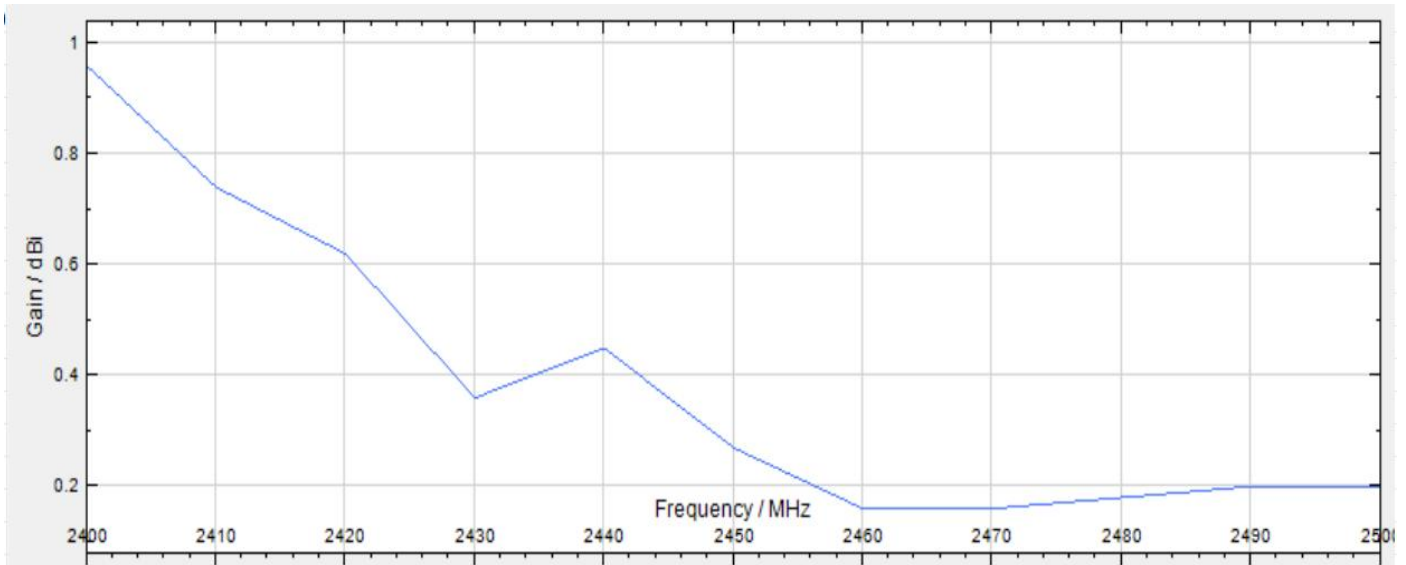


6.2 Return Loss

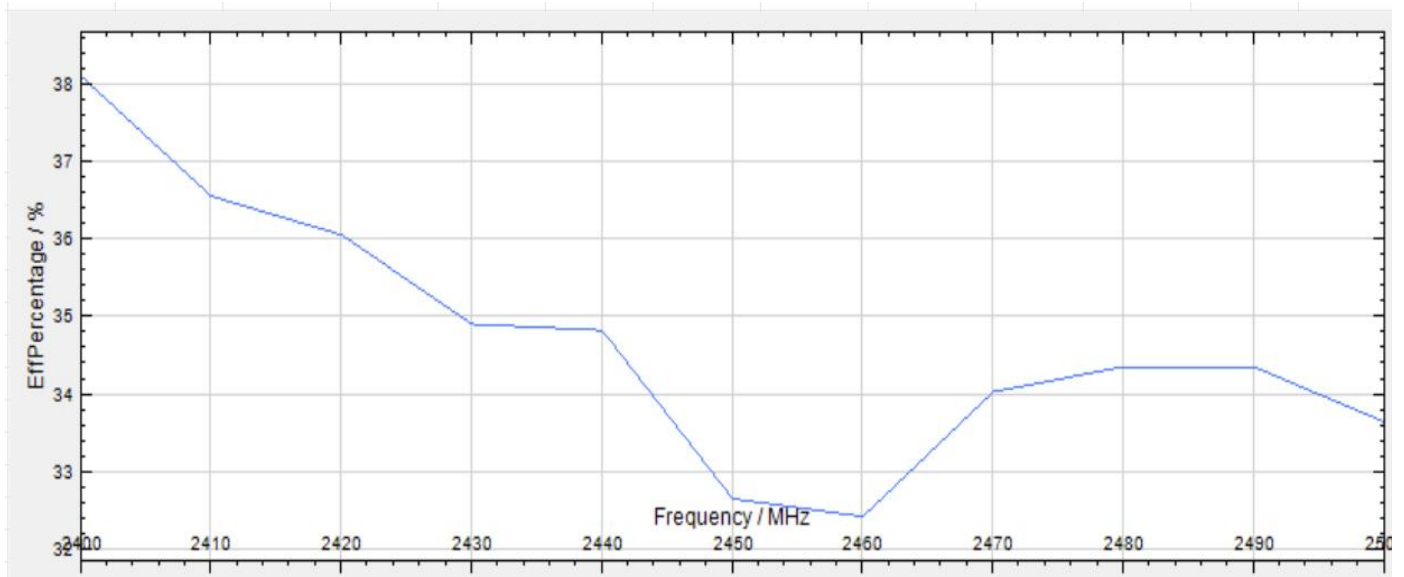


## 6. Performance Data

### 6.3 Gain



### 6.4 Efficiency

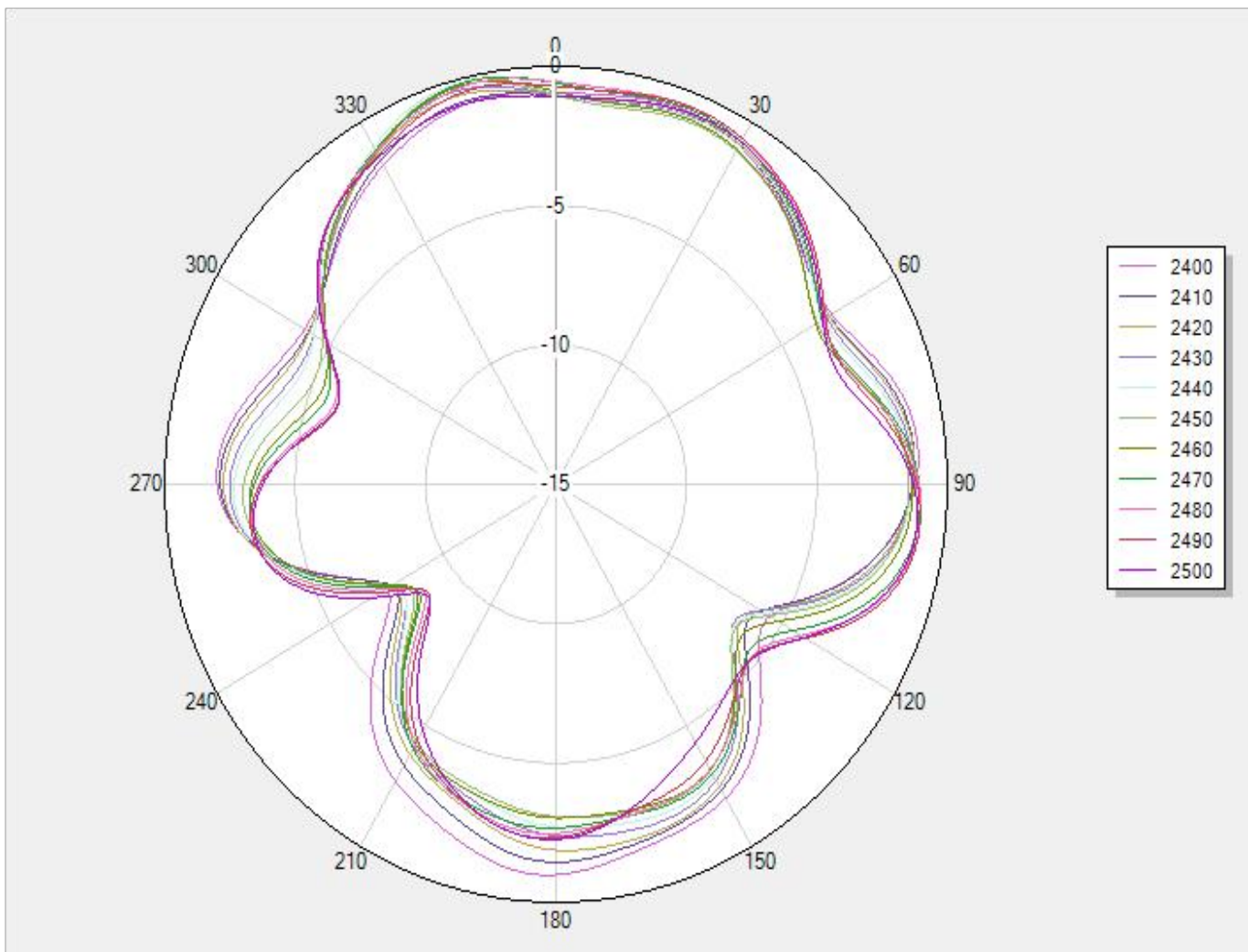


### 6.5 Gain and Efficiency

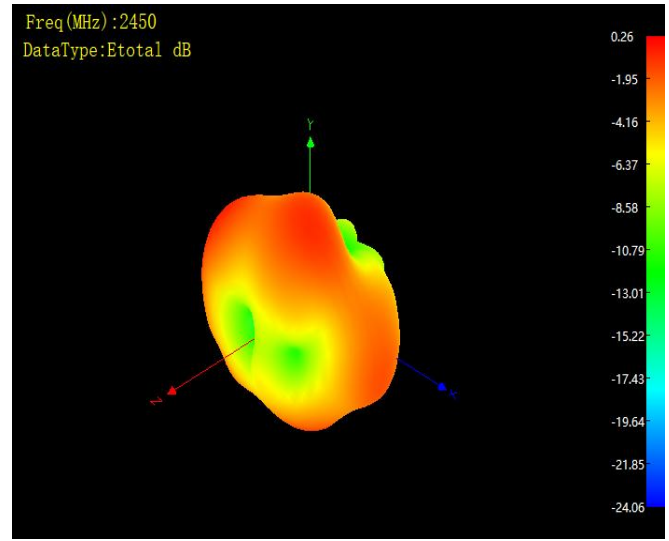
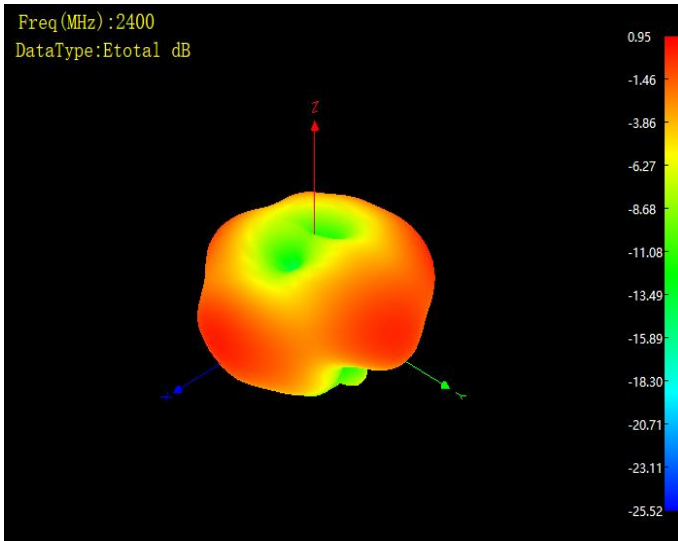
Frequency (MHz)	2400	2450	2500
Gain (dBi)	0.96	0.27	0.2
Efficiency (%)	38.1	32.66	33.65

## 7. Radiation Patterns

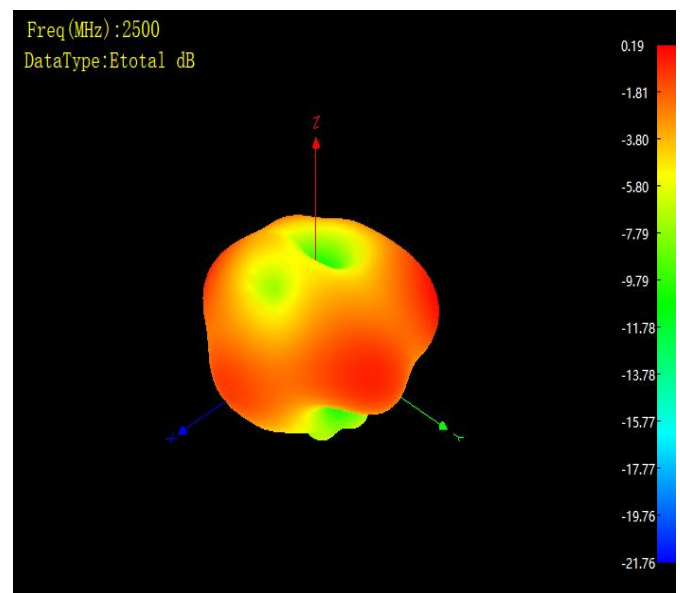
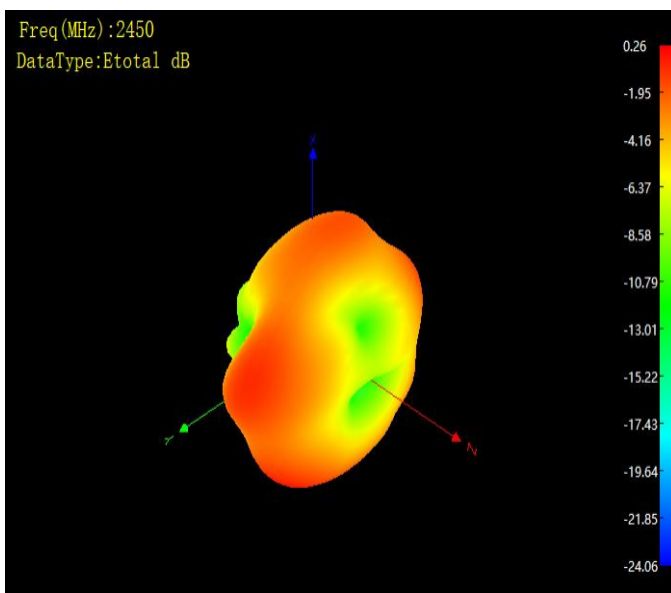
### 7.1 2 D Radiation Patterns



7.2 3D Radiation Patterns—2400MHz、2450Mhz



7.2 3D Radiation Patterns—2450MHz、2500Mhz





## DECLARATION:

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