



ANTENNA DATASHEET

2.4G Small Size Rubber Antenna

Model No:

BW2.4JWX27-10ZJ

Description:

2400-2500MHz Rubber Antenna with SMA Male Connector

Features:

2400-2500MHz

SMA Male connector

Structure: 360° Omnidirectional Radiation

Connector Type : SMA Male (Customizable)

Dimension:27mm x 10mm

RoHS & REACH Complaint



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BW2.4JWX27-10ZJ

Part Number Description

BW	Company	Bat Wireless
2.4	Frequency	2400-2500MHz
J	Name	Rubber Antenna
W	Type	External
X	Constant	X
27-10	Approximate Dimensions	27-10mm
Z	Feature	Straight
J	Connector	SMA Male

1. Description

Bat Wireless BW2.4JWX27-10ZJ is a high-performance omnidirectional antenna featuring a biomimetic design in a cylindrical form factor. Despite its compact 27mm size, it achieves breakthrough RF performance through its unique shape, offering a small footprint and lightweight design. Constructed with a high-quality plastic housing, the straight design is non-foldable, providing excellent signal reception and transmission capabilities to ensure stable and reliable device connectivity. Its compact and lightweight rod-shaped design makes it easy to install and transport.

Classic application scenarios:

Industry 4.0: Real-time monitoring of CNC machine tools

Smart healthcare: Surgical robot control

Smart transportation: Rail contact network monitoring

Energy IOT: Substation inspection robots

Bat Wireless provides customized services to optimize your device, 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
Electrical Characteristics			
Antenna Type	Rubber Antenna		
Frequency Range	2400-2500	MHz	
Input Impedence	50	Ω	
V.S.W.R	<2.5		
Gain	2.8	dBi	
Polarization Type	Vertical		
Power Capacity	50	W	
Lightning Protection	-		
DC Voltage	-	V	
Radiator	-		
Mechanical Characteristics			
Dimensions	27 x 10	mm	
Connector Type	SMA Male (Customizable)		
Cable Type	/		
Cable Length	/	mm	
Mount way	SMA Connection		
Color	Black		
Material	ABS		
Weight	2.3	g	
Environmental Characteristics			
Waterproof Rating	-		
ROHS Compliant	Conform		
Operating Temperature	-45~ +85	$^{\circ}\text{C}$	
Storage Temperature	-45~ +85	$^{\circ}\text{C}$	

*Note: The above data is for reference only. Since the antenna function is relatively sensitive, please inform us for evaluation if there are any changes to the structural components around the main body of the antenna.



3. Product Picture



* Product images are for reference only.



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.

Rubber Shell

③ 2.5N

② Black

① Male

NO	Code	Name	Description	Qty
3		Spring	Phosphor Bronze 2.5N	1
2		Rubber Shell	27*10MM Black	1
1		SMA	SMA Male	1

Frequency	2400-2500MHz	ANGLE PROJECTION GENERAL TOLERANCES 100-200: ± 3.00 50-100: ± 2.00 25-50: ± 0.20 10-25: ± 0.15 1-10: ± 0.10	PRODUCT NAME			
Gain	2.8DBi		Rubber Antenna-2400-2500MHz-SMA Male-L=27MM			
VSWR	<2.5		UNIT	MM	SIZE	1:3
Polarization	Vertical		PAGE	1 OF 1	FORNMT	A4
Impedance	50Ω					
Operating Temperature: -45°C~85°C		Storage Temperature: -45°C~85°C				



5. Test Equipment



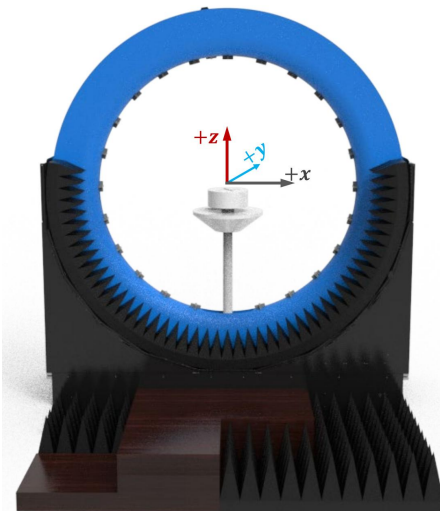
Keysight/E5071C Network Analyzer



R&S/CMW500 Comprehensive test equipment



R&S/SMBV100B Signal Source



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

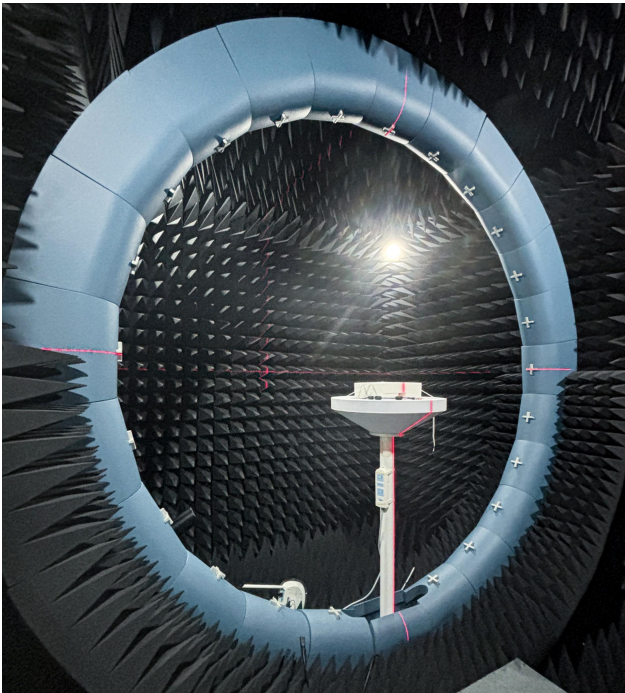
Description

Active measurement

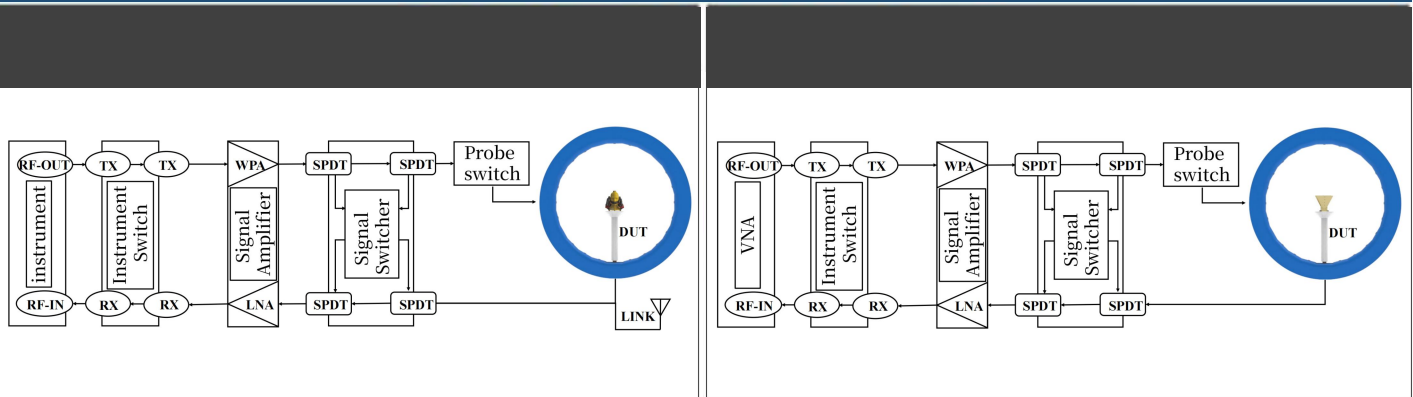
Capability : TRP、TIS、EIRP、EIS,. etc
Mode : 2G/3G/4G/5G、Wi-Fi b/g/n/a/ac/ax、BT、NB-IOT、Cat-M (eMTC)、GPS/BEIDOU/GLONASS、ZigBee、LoRa(Non-Signaling),.etc

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

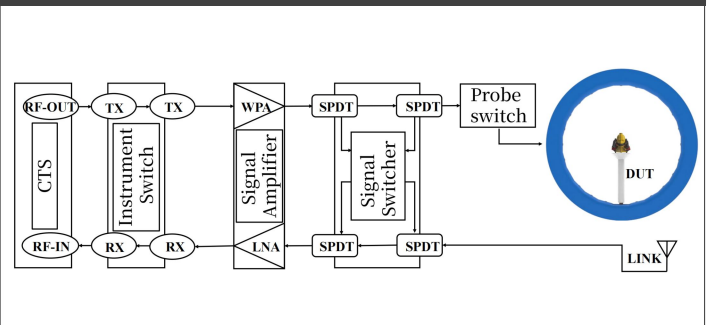
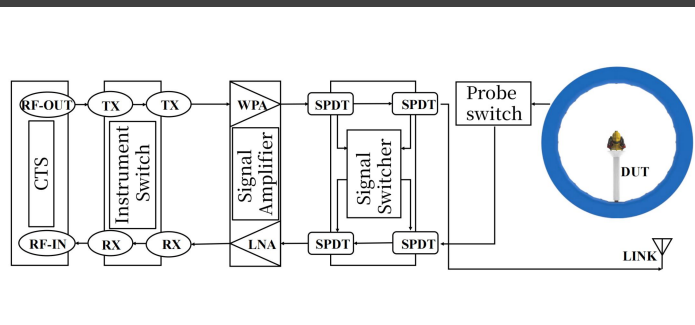


RF Link diaram of multi probe spherical near-field testing system



RF Link Overview

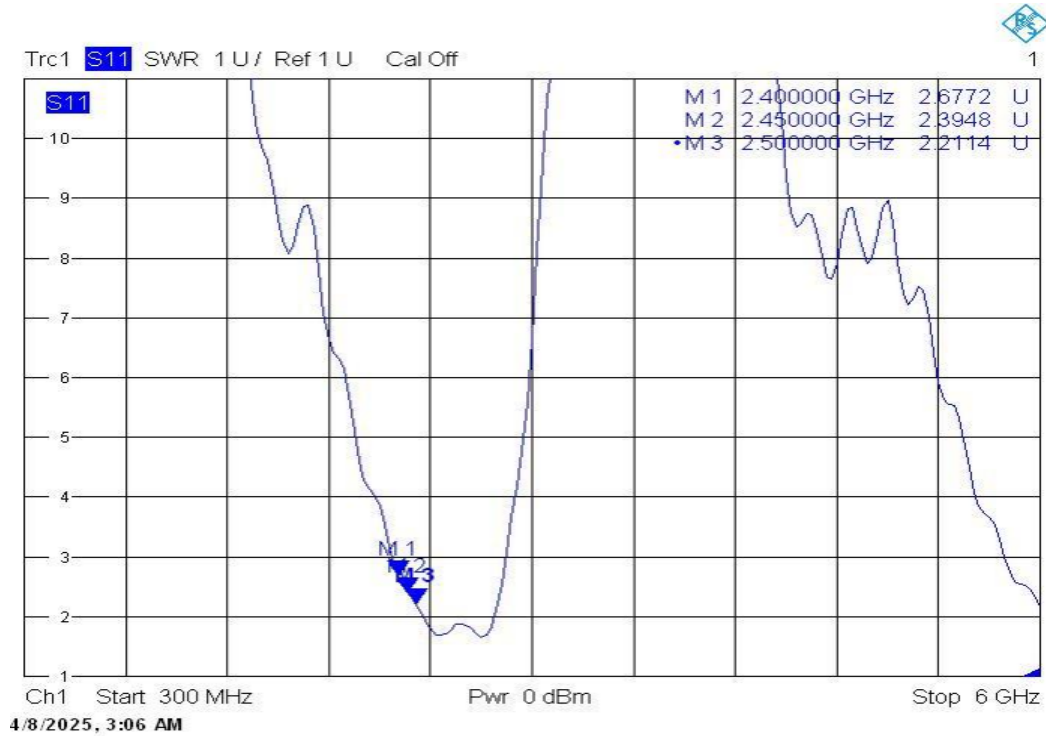
RF Link of Passive measurement



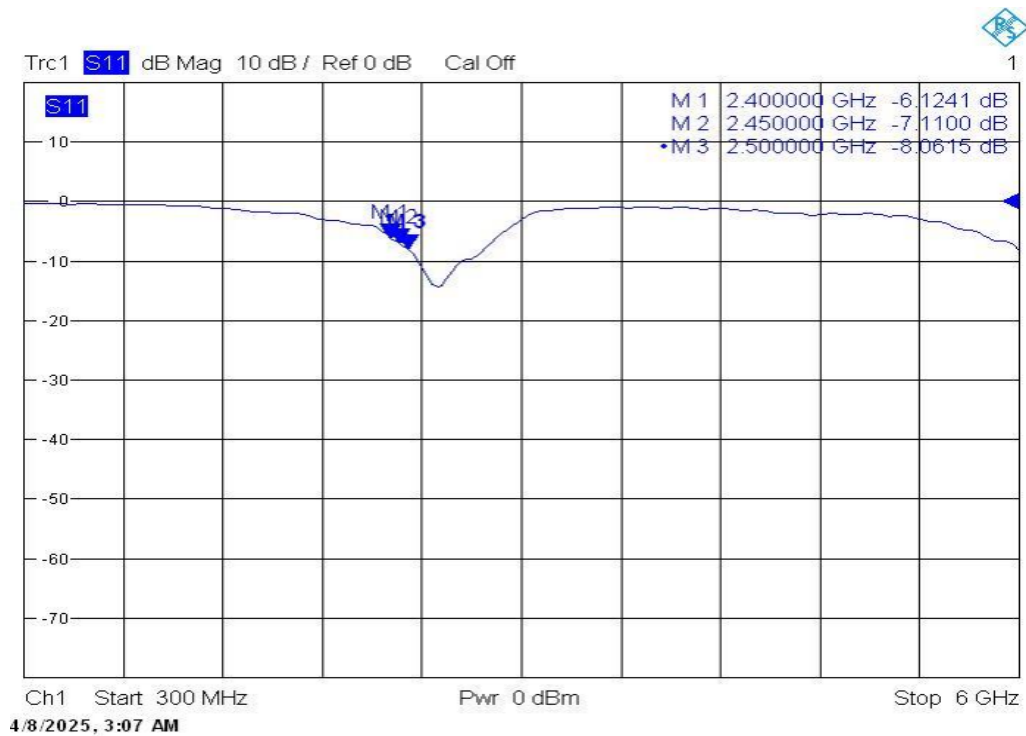


6. Performance Data

6.1 VSWR



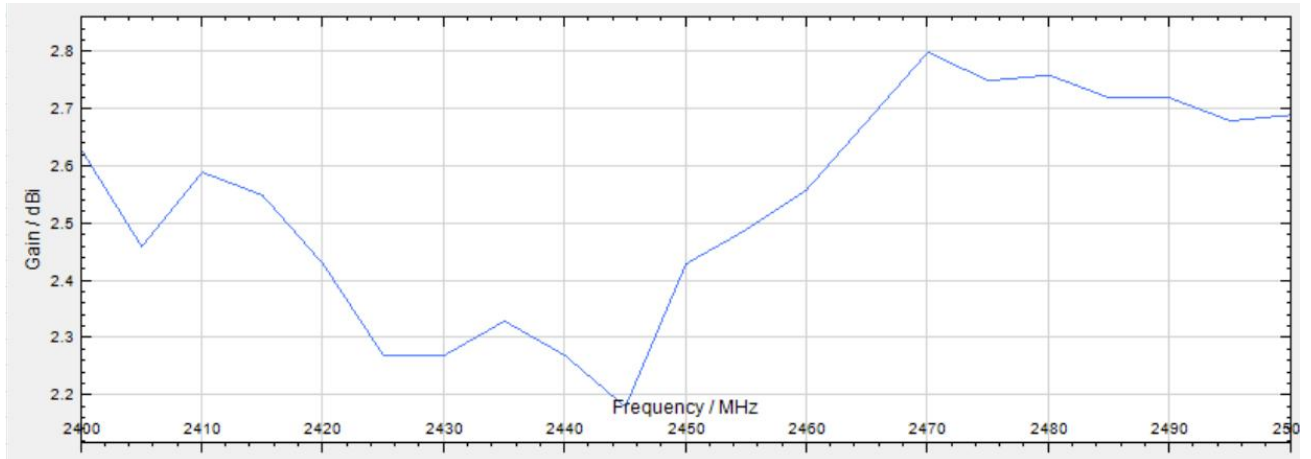
6.2 Return Loss



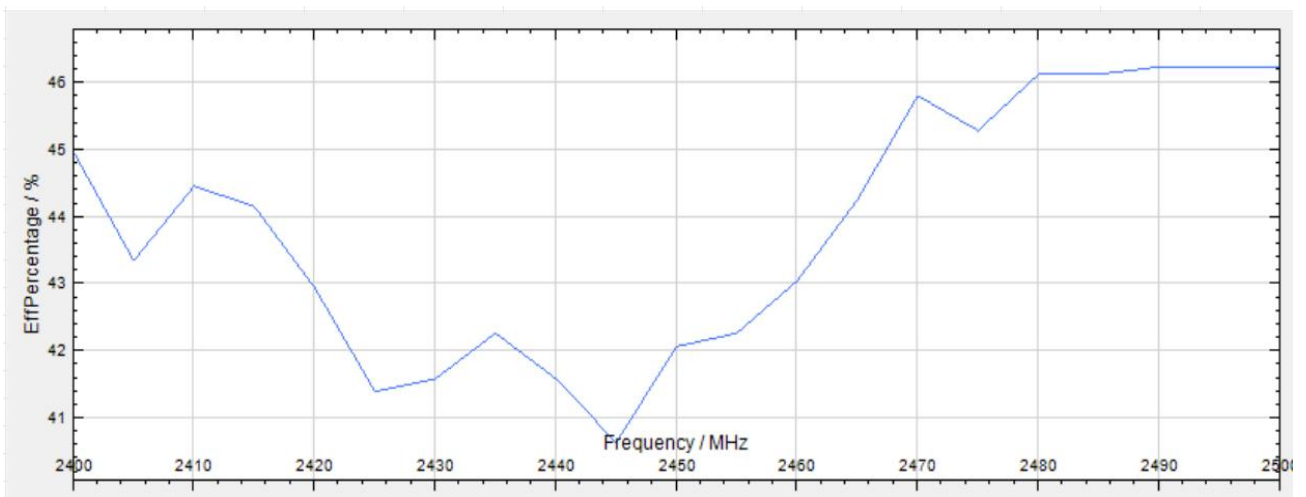


6. Performance Data

6.3 Gain



6.4 Efficiency



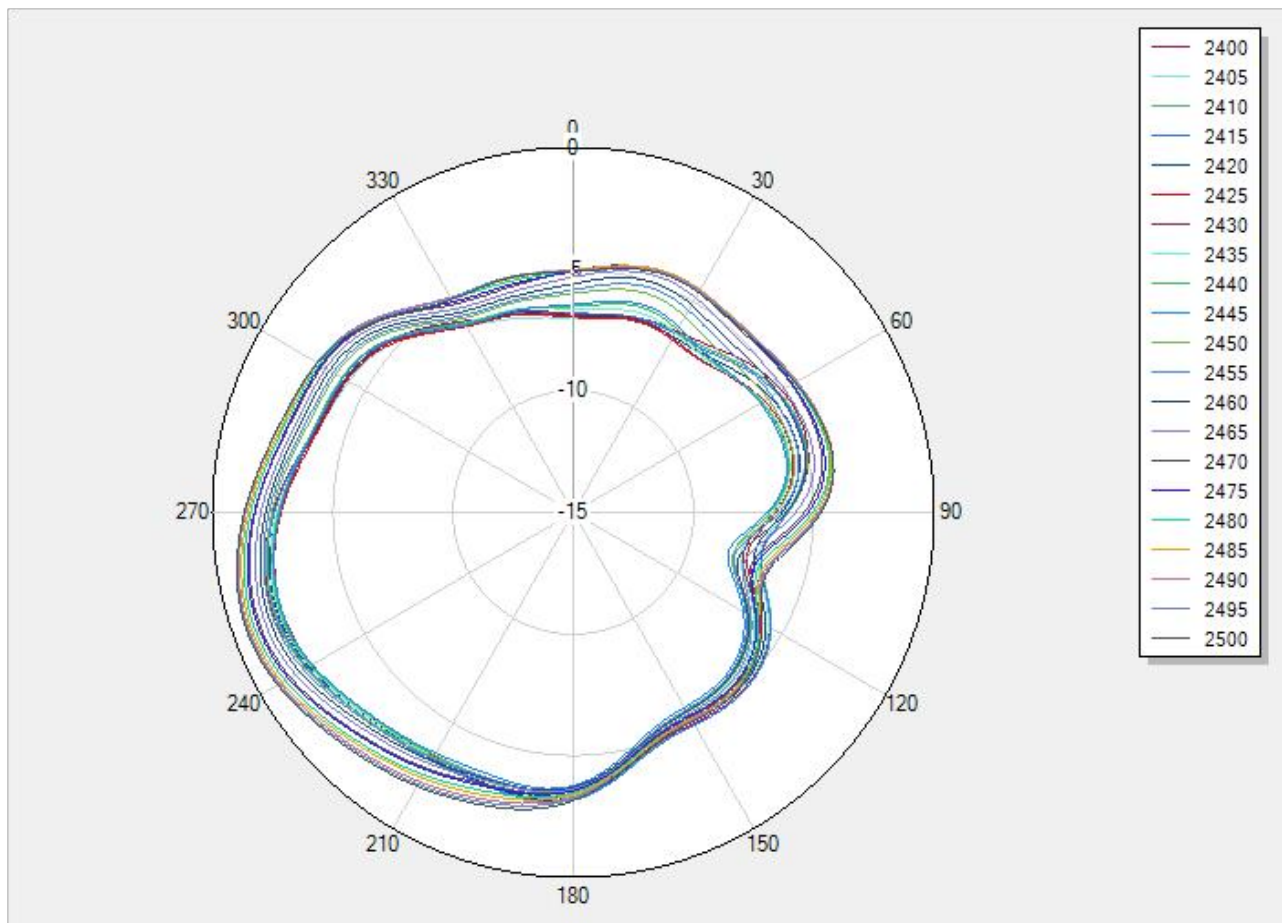
6.5 Antenna Gain & Efficiency

Frequency(MHz)	2400	2425	2450	2475	2500
Gain(dBi)	2.63	2.27	2.43	2.75	2.69
Efficiency(%)	44.98	41.4	42.07	45.29	46.24



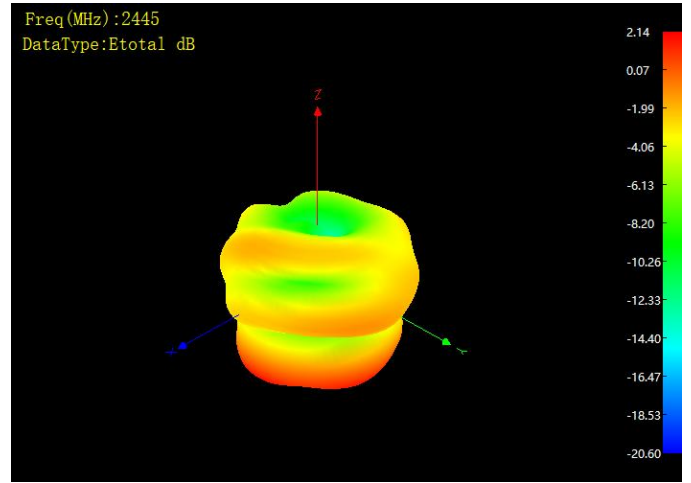
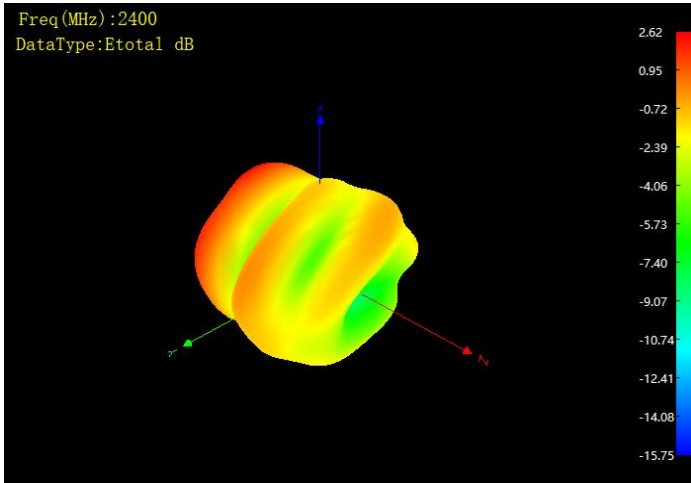
7. Radiation Patterns

7.1 2D Radiation Patterns

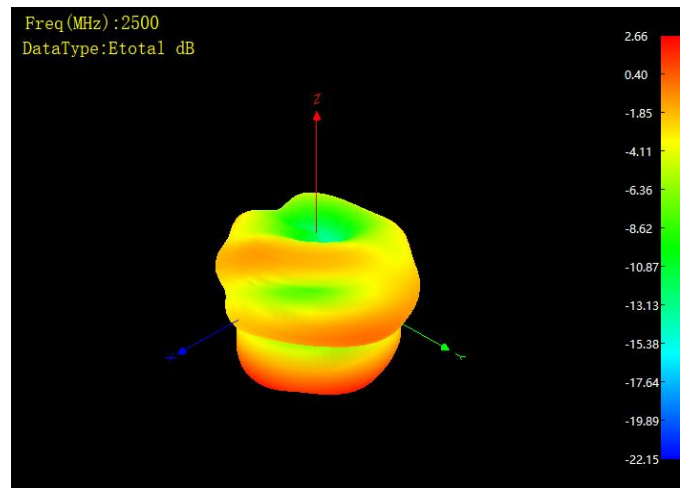
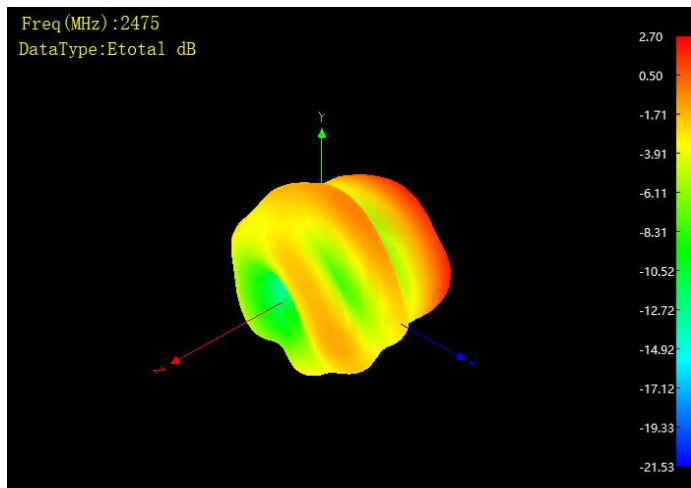




7.2 3D Radiation Patterns—2400MHz、 2445MHz



7.2 3D Radiation Patterns—2475MHz、 2500MHz





DECLARATION:

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