

Antenna Datasheet

433Mhz Magnetic Mount Antenna

Model:

BW433XWX120-8L1000J

Description:

433Mhz Magnetic Mount Antenna with SMA-J Male RG174 1000mm Length

Features:

433MHz Frequency Range

SMA-J Male

360° Omnidirectional Radiation

Cable Type: RG174

Cable Length: 1000mm

Dimensions: 150mm x 30mm

Compliant with RoHS & REACH Regulations

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BW433XWX120-8L1000J

Part Number Explanation

BW	Company	Bat Wireless
433	Frequency	433MHz
X	Name	Magnetic Mount Antenna
W	Type	External
X	Constant	X
120-8	Dimensions	120-8mm
L	Length	Length
1000	Cable Length	1000mm
J	Connector	SMA-J Male

Selection Table

Connector	SMA	N	TNC	BNC	SMB	MCX	Customizable
Cable Length	1000	1500	2000	2500	3000	5000	Customizable
Cable Type	RG174	RG178	RG316	RG58			Customizable

1. Description

The BatWireless **BW433XWX120-8L1000J** is a high-performance, omnidirectional external suction cup antenna designed specifically for the 433Hz frequency band. It combines strong penetration, omnidirectional coverage, and lightweight deployment. The antenna's radiator is constructed from high-quality steel-carbon material, ensuring excellent signal transmission and reception performance, suitable for long-term use in complex environments. The suction cup base supports magnetic attachment, providing flexible and stable installation and quick deployment. Its compact and lightweight design further meets the needs of automotive, industrial, and outdoor applications, providing stable, low-loss connectivity for smart home, security surveillance, and industrial IoT devices.

Typical Application Scenarios:

Industrial IoT: Smart electricity/water meters, environmental monitoring equipment

In-vehicle and mobile communications: Logistics vehicle tracking, emergency communication vehicles

Smart devices and commercial applications: Express lockers/vending machines, smart agriculture

Security monitoring: Wireless data transmission for cameras and emergency communication equipment

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
Electrical Characteristics			
Antenna Type	Magnetic Mount Antenna		
Frequency Range	433	MHz	
Input Impedence	50	Ω	
V.S.W.R	<1.7		
Gain	1.6	dBi	
Polarization Type	Vertical		
Power Capacity	50	W	
Lightning Protection	-		
DC Voltage	-	V	
Radiator	-		
Mechanical Characteristics			
Dimensions	150 x 30	mm	
Connector Type	SMA-J Male (Customizable)		
Cable Type	RG174		
Cable Length	1000	mm	
Mount way	Screw-on		
Color	Black		
Meterial	Material		
Weight	26	g	
Environmental Characteristics			
Waterproof Rating	-		
ROHS Compliant	Compliant		
Operating Temperature	-45~ +85	$^{\circ}\text{C}$	
Storage Temperature	-45~ +85	$^{\circ}\text{C}$	

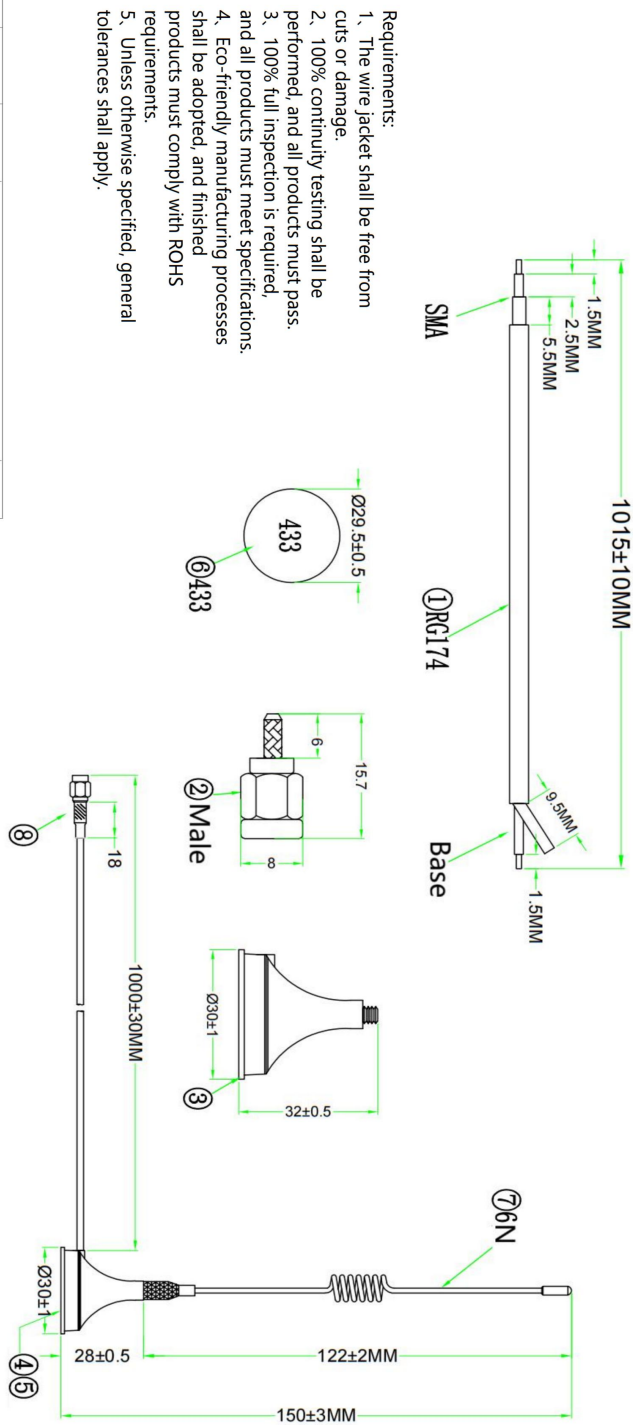
3. Product Picture



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	Qty
8		Heat Shrink Tubing	18*3.5MM Black	1
7		Steel Wire	6N L=122MM	1
6		Sticker	433 Word Stickers	1
5		Magnet	2*1.5MM Single-sided Magnet	1
4		Metal Piece	2*2.4MM	1
3		Base	30*32MM Small Flanged Suction Cup	1
2		SMA	Male	1
1		Wire	RG174 Black L=1015MM	1

Frequency	433MHz
Gain	1.6DBI
VSWR	< 1.7
Polarization	Vertical
Impedance	50Ω
Operating Temperature	-45°C~85°C
Storage Temperature	-45°C~85°C

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			
Magnetic Mount Antenna-433MHz-SMA Male-L=1000MM			
UNIT	MM	SIZE	1:3
PAGE	1 OF 1	FORNMT	A4

5. Test Equipment



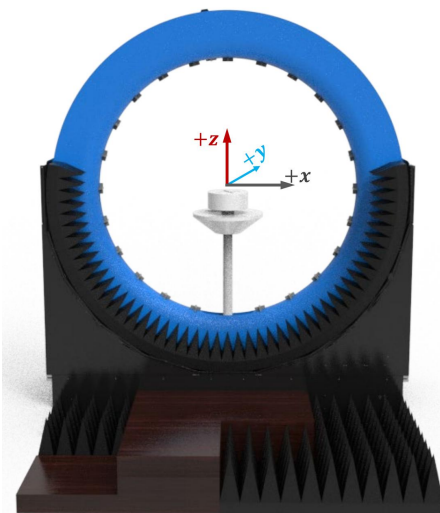
Keysight/E5071C Network Analyzer



R&S/CMW500 Comprehensive Tester



R&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

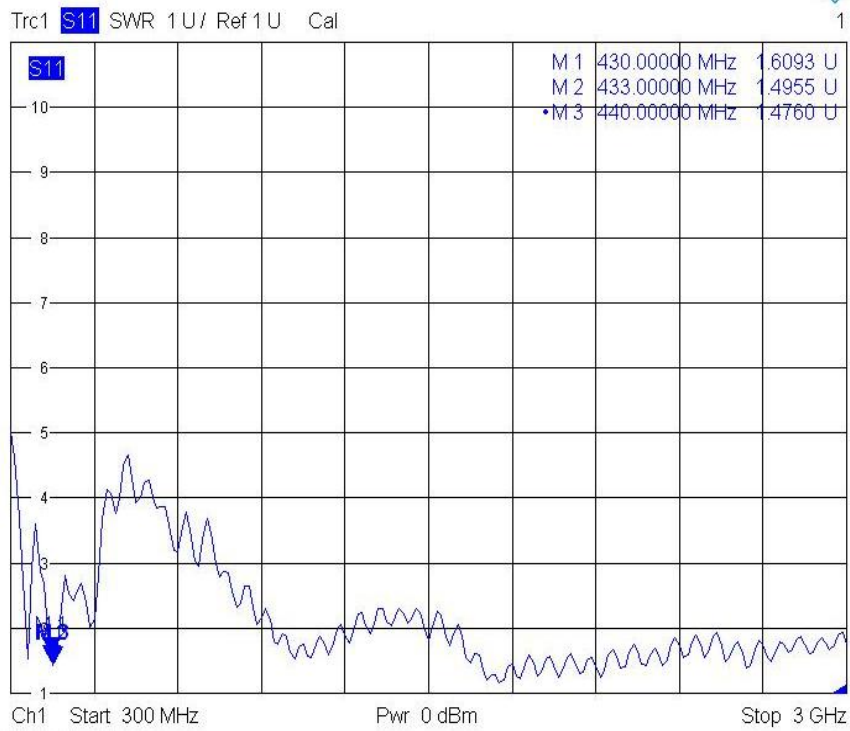


RF Link of Passive measurement

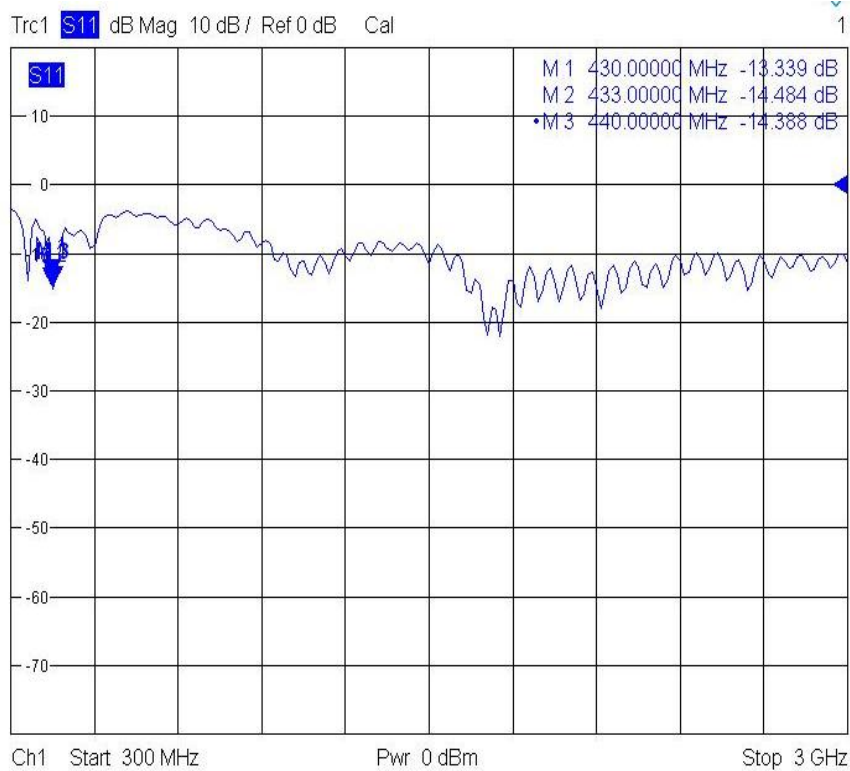


6. Performance Data

6.1 VSWR

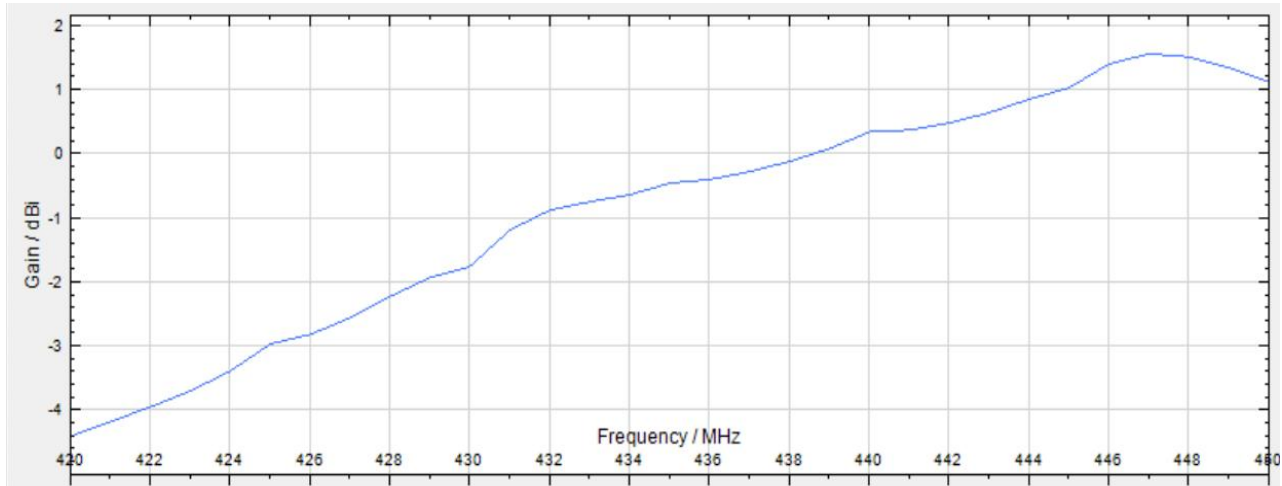


6.2 Return Loss

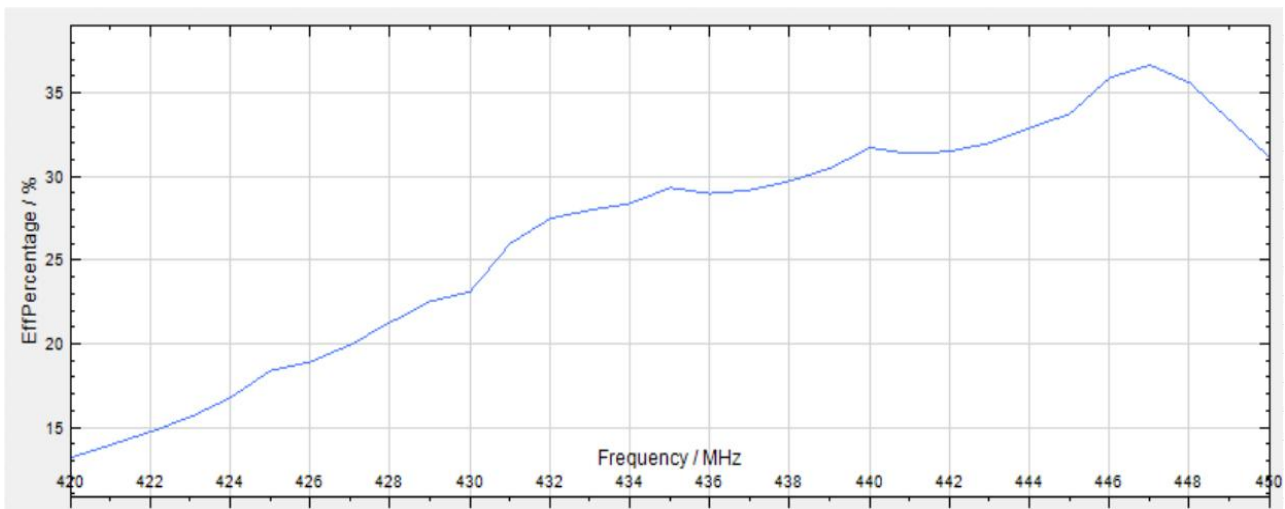


6. Performance Data

6.3 Gain



6.4 Efficiency

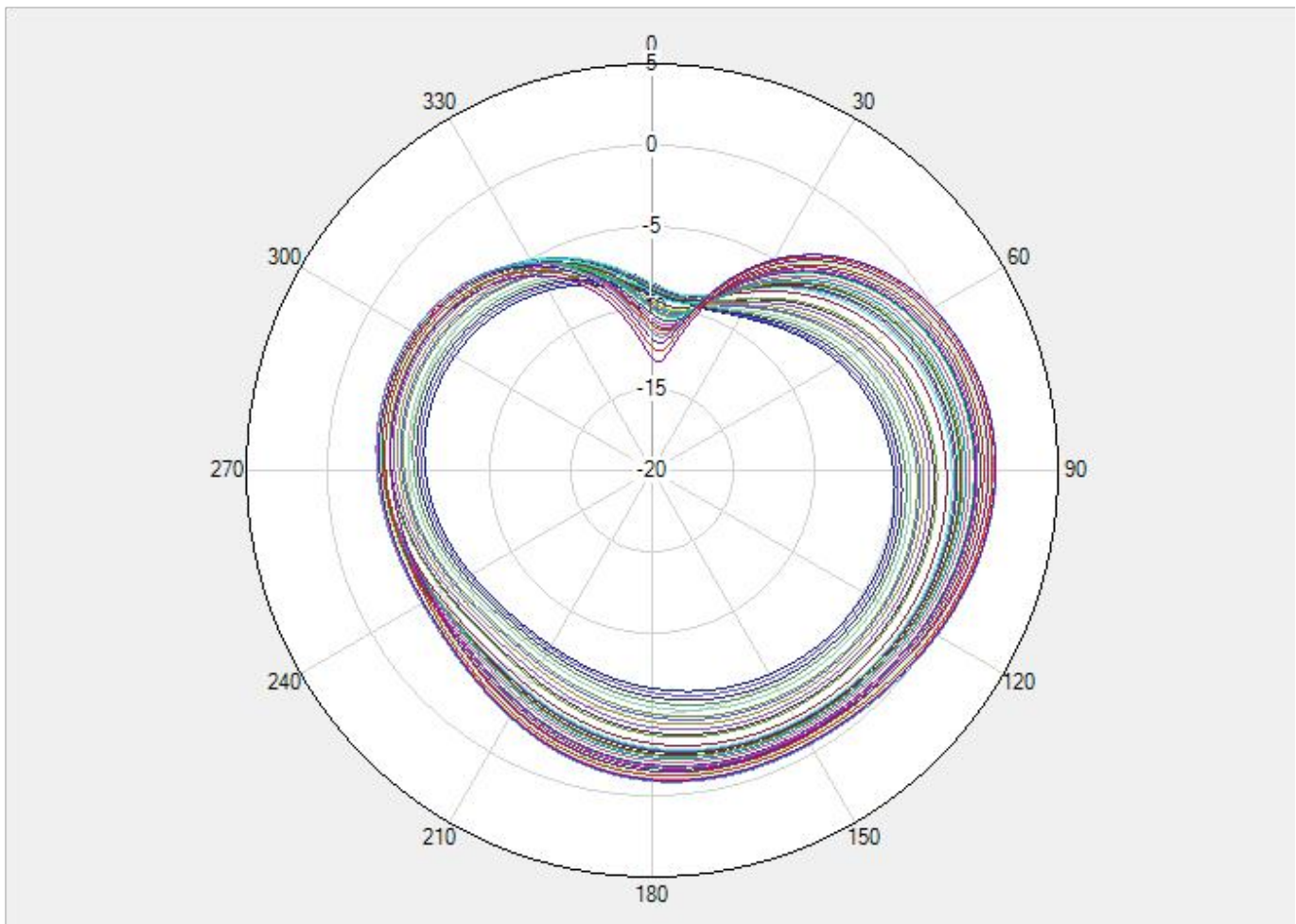


6.5 Gain and Efficiency

Frequency (MHz)	420	433	450
Gain (dBi)	-4.4	-0.74	1.13
Efficiency (%)	13.24	28.05	31.19

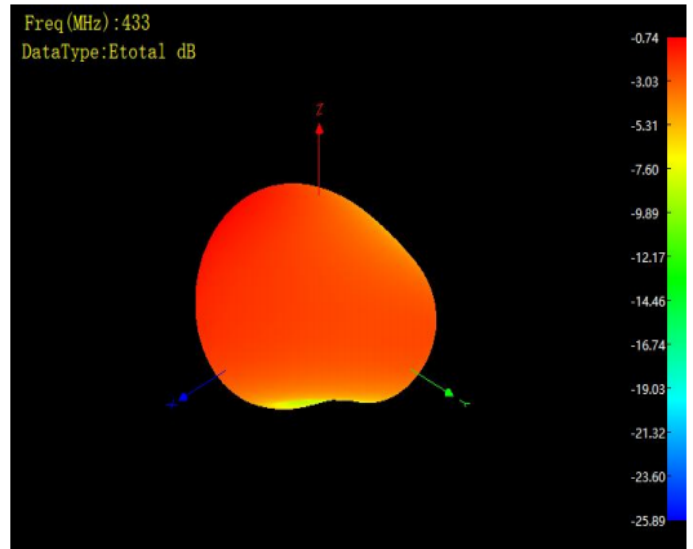
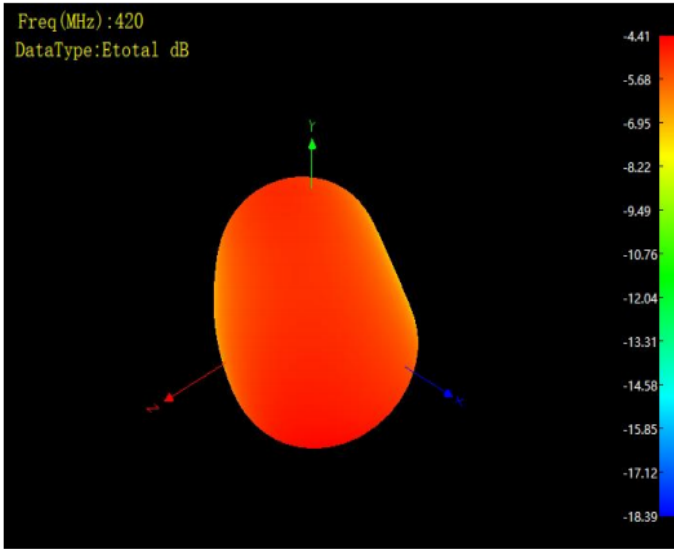
7. Radiation Patterns

7.1 2 D Radiation Patterns

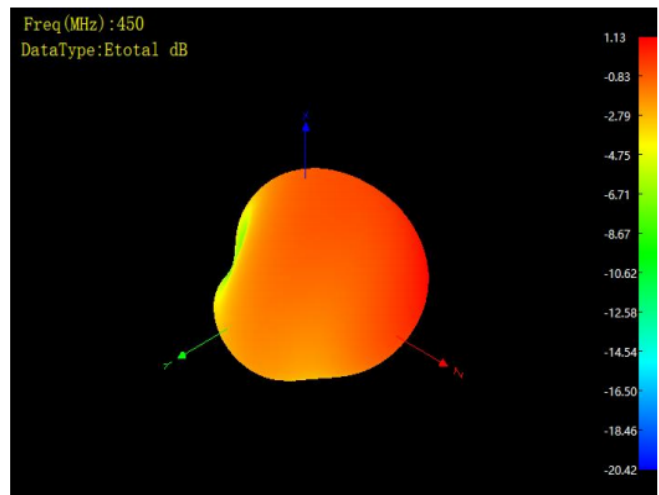
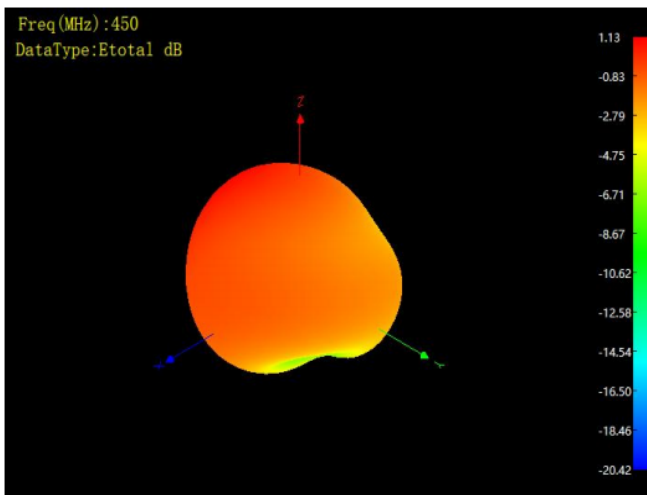




7.2 3D Radiation Patterns—420MHz、433Mhz



7.2 3D Radiation Patterns—450MHz





DECLARATION:

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